RADICALIZATION AND DERADICALIZATION: PROCESSES AND CONTEXTS

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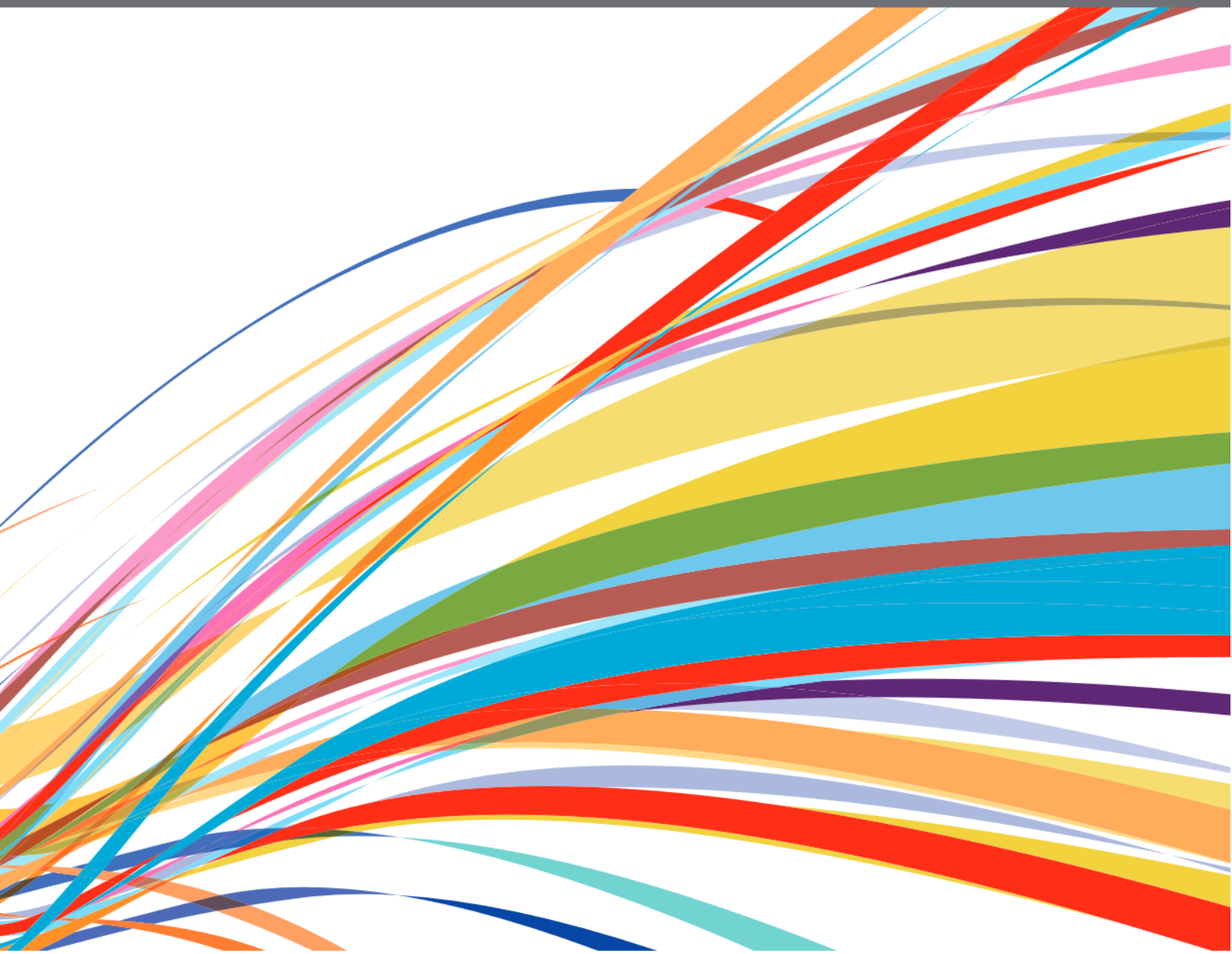

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RADICALIZATION AND DERADICALIZATION: PROCESSES AND CONTEXTS

Topic Editors:
David Winter, University of Hertfordshire, United Kingdom
Kees van den Bos, Utrecht University, Netherlands
John Morrison, University of London, United Kingdom

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Adrian Cherney,
The University of Queensland, Australia

*CORRESPONDENCE
David A. Winter
d.winter@herts.ac.uk

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Editorial: Radicalization and deradicalization: Processes and contexts

David A. Winter[1]*, John F. Morrison[2] and Kees van den Bos[3]

[1]Department of Psychology, Sport, and Geography, University of Hertfordshire, Hatfield, United Kingdom, [2]School of Law and Criminology, Maynooth University, Maynooth, Ireland, [3]Department of Psychology and School of Law, Utrecht University, Utrecht, Netherlands

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Editorial on the Research Topic
Radicalization and deradicalization: Processes and contexts

In a world in which polarization of views is all too apparent, and where extremism is sometimes expressed in violent and terrorist acts, understanding of the factors and processes involved in radicalization, and in the occasional transition from extreme views to violent actions, is of crucial importance. This is also imperative when we want to understand processes of deradicalization and how to counter radicalization into violent extremism. The fostering of such understanding was the principal aim of this Frontiers Research Topic.

Previous work in the field has considered various different psychological and psychosocial aspects of radicalization, drawing upon a range of theoretical perspectives. The continuation of this can be seen across the papers collected in this Research Topic.

A major focus of several of the papers concerns the 'push, pull, and personal' factors (Vergani et al., 2020) that may predispose an individual to become radicalized. At the personal, individual level, Braddock et al. provide evidence of the role of Machiavellianism (but not other "dark tetrad" personality traits), which interacted with narrative exposure and vividness to amplify the persuasive effect of terrorist narratives. Grimbergen and Fassaert point to the relevance of psychiatric disorders, self-sufficiency problems, and reported adverse childhood experiences, finding high levels of these in people suspected of violent extremism.

Turning to the relationship of the individual to the group, Isenhardt et al. provide evidence that identity diffusion increases approval of left-wing and Islamist extremist attitudes and mediates somewhat the influence of parenting on extremist attitudes. People who have experienced identity diffusion may be particularly vulnerable to identity fusion, for example with an extremist group, and Martel et al. present research findings indicating that identity fusion is a significant predictor of fighting and dying for a cause, as are sacred values and moral convictions, with identity fusion being

the strongest predictor of endorsement of self-sacrifice, particularly when the validity of the personal self is under threat. Mason et al. also provide evidence that identity fusion is prominent in political activists, and associated with willingness to undertake extreme behavior; that becoming an activist provides individuals with a clearer and more positive view of themselves, in contrast with extreme negative views of the opposing group; and that similar processes operate in people with contrasting political views.

A special case is made for the relevance of perceived injustice and unfairness. For example, Jansma et al. argue in their theoretical model that perceived unfairness plays a major role in radicalization of people protesting on matters of climate change. Evidence of the association between perceived group-based injustice and support for, and intention to engage in, violent extremism is provided by Rottweiler and Gill, who found this to be particularly so in individuals with high needs for uniqueness and status and less in those high in trait forgiveness, demonstrating strong self-control, or showing critical and open-minded thinking styles. Support for radical action may also be influenced by incidences of such actions, and Schumann et al. provide evidence that the number of attacks on an ingroup was not related to public support for terrorism but number of attacks on an outgroup was. Finally, while some of the papers consider responses to extremist messages, Prentice and Taylor examine the messages themselves, finding considerable overlap between extremist and non-extremist material, which they interpret as being more to do with resistance and positioning than with adoption of an extremist master-narrative by non-extremist authors.

The papers in the Research Topic demonstrate the richness of research on radicalization. In particular, they indicate possibilities for cross-fertilization and theoretical integration, not only within psychological perspectives, but also between these and work in the sociological and historical fields (as shown, for example, in the paper by Jansma et al.) to provide a multi-layered understanding of radicalization in terms of individual and social factors and the influences to which the person is exposed. The empirical papers also demonstrate the utility of a wide range of research methods, including questionnaires, interviews, surveys, repertory grid technique, and textual analysis.

A limitation of research in the area is indicated by the fact that only two of the eight empirical papers in the Research Topic actually focused on participants who may already have been radicalized. While this is a possible weakness of the papers, the study of aspects of radicalization in wider groups of participants does indicate that it is a phenomenon that also involves "normal" psychological processes that, although they may lead to extreme views, do not necessarily result in violence. We would therefore take issue with definitions of radicalization or extremism (e.g., those quoted in the paper by Isenhardt et al.) that seem automatically to equate these with violence or with rejection of particular values, such as those associated with a "Western" worldview. Perhaps the most important implication of viewing radicalization as possibly involving both normal and abnormal psychological processes is that the insights from these analyses may suggest successful and fruitful approaches to deradicalization. Thus, it is our hope that, taken together, the papers collected in this Research Topic may contribute to efforts to prevent violent extremism, in parallel to fostering the continued academic debate.

It is noteworthy, for example, that there are indications that it might be valuable to tailor interventions for specific groups of people: for example, with those who are high in identity fusion with a particular group, interventions directed at diminishing of relational ties to this group coupled with redirection of their beliefs and passions elsewhere (Martel et al.); and with highly Machiavellian people, development of counter-messages that may appeal to them and neutralize the persuasive effects of terrorist propaganda (Braddock et al.). There are also indications of the possible value of involvement of health and social care professionals in programmes countering violent extremism (Grimbergen and Fassaert) and that such programmes should not be purely risk-oriented but should also promote protective factors (Rottweiler and Gill).

In short, we hope that the papers in the Research Topic will stimulate further research in the field in different cultural settings, in particular focusing on the interaction of the psychological, social, and contextual factors involved in radicalization, its escalation to violent extremism, and deradicalization.

Author contributions

DW, JM, and KvdB conceived, and shared the task of editing, the Research Topic. DW wrote the first draft of the editorial, to which JM and KvdB then contributed. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Identity Diffusion and Extremist Attitudes in Adolescence

Anna Isenhardt[1,2]*, *Maria Kamenowski*[3], *Patrik Manzoni*[3], *Sandrine Haymoz*[4], *Cédric Jacot*[5] and *Dirk Baier*[3]

[1] Criminological Research Institute of Lower Saxony, Hanover, Germany, [2] Institute for Penal Law and Criminology, University of Bern, Bern, Switzerland, [3] Department of Social Work, Institute of Delinquency and Crime Prevention, Zürich University of Applied Sciences, Zürich, Switzerland, [4] School of Social Work Fribourg, University of Applied Sciences and Arts Western Switzerland, Fribourg, Switzerland, [5] Department of Social Work, Social Policy and Global Development, University of Fribourg, Fribourg, Switzerland

Various theoretical approaches assume that identity diffusion is an influencing factor of extremism. However, there are hardly any empirical tests on this relationship. Based on a nationwide survey of 8,317 young people in Switzerland, the study analyses whether identity diffusion is associated with right-wing extremist, left-wing extremist, and Islamist extremist attitudes. In addition, the study tests whether identity diffusion mediates the influence of family and school-related variables on extremist attitudes. The results show that identity diffusion primarily increases approval of left-wing extremist and Islamist extremist attitudes. Furthermore, identity diffusion mediates to a small extent the influence of parenting on extremist attitudes.

Keywords: identity, right-wing extremism, left-wing extremism, Islamist extremism, parenting, life events, academic performance

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Edited by:
Marius Ioan Drugas,
University of Oradea, Romania

Reviewed by:
Antje Gansewig,
University of Oldenburg, Germany
Neil Ferguson,
Liverpool Hope University,
United Kingdom
Amrita Kaur,
Kean University-Wenzhou, China

***Correspondence:**
Anna Isenhardt
anna.isenhardt@kfn.de;
anna.isenhardt@krim.unibe.ch

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INTRODUCTION

Identity diffusion, a state of identity in which persons are confused about their goals, occupations, gender roles etc. (Erikson, 1959, 1968), is discussed to be linked with various forms of deviant behavior and attitudes, so also with extremism and terrorism. For example, Schwartz et al. (2009, p. 545) state that "aimless-diffused individuals are particularly vulnerable to the allures of terrorism because terrorist ideologies are espoused with certainty, purpose, and commitment that can provide a sense of direction to a previously unguided life." People without a fixed identity are in an aversive state; they are in search of orientation and therefore more open to extremist ideologies because they offer easy answers to complex questions.

Additionally, identity diffusion was found to be related to aggression (Dammann et al., 2011). An explanation for this relationship is that deficits in enduring feelings of ambivalence, grief, or sadness resulting from identity diffusion can increasingly lead to impulsive actions and thus also to aggression (Dammann et al., 2011). An essential characteristic of extremism is that it seeks to overcome existing political conditions through aggression and violence (Baier, 2018). Joining extremist groups can therefore enable identity diffused people to exercise violence. In this respect, too, a connection between identity diffusion and extremism can be assumed.

However, empirical studies which focus on the correlation between identity diffusion and extremism are rare. The current study provides new insights into this relationship by testing the correlation between identity diffusion and three forms of extremist attitudes (right-wing, left-wing, and Islamic) in a sample of Swiss adolescents. In addition, it is tested whether identity diffusion is a mediator of the relationships between extremist attitudes and family and school-related variables.

IDENTITY DEVELOPMENT

In general, identity can be understood as the awareness of being an unmistakable individual with a life story of one's own, of showing a certain consistency in one's actions and of having found a balance between individual demands and social expectations (Abels, 2010, p. 258). Differences in individual identities become apparent in the individuals' specific characteristics or qualities as well as in their attitudes and competencies (Zimmermann, 2006).

In general, identity is a communicative construct that is produced symbolically and in exchange with other individuals (Mead, 1972). Erikson (1959, 1968) described the development of identity as a dynamic process with different phases. In each of the development phases, individuals face conflicts between the individual's attitude to oneself and to one's environment. These conflicts or crises are either the result of the rapidly changing physical and psychological experiences of individuals (Kernberg, 1978, 2006) or of the lack of integration of the external and the self-image (Clarkin et al., 2006). Therefore, the individual needs to cope with these conflicts. A successful coping leads to a consolidated identity, while an unsuccessful coping can lead to a diffusion of identity. Threats to one's identity can occur at any developmental phase and thus at any point in life, but is most massive in adolescence, where the individual searches for its place in society (Erikson, 1959, 1968). The individual has to reconcile the image that he or she has made of himself or herself with the image that others have of him or her, and wants to be recognized and accepted (Erikson, 1959, 1968).

IDENTITY, IDENTITY DIFFUSION, AND EXTREMISM

Identity as an explaining factor of extremism is discussed in various theoretical approaches (e.g., Schwartz et al., 2009). Baier (2018, p. 9), for example, distinguishes two different paths of extremist radicalization in which identity plays a significant role. One path is characterized by the formation of identity on the basis of criminogenic socialization, which makes people susceptible to violent behavior in general and extremist violence in particular. The second path involves the questioning of the previous stable identity due to special events, whereupon a phase of searching for a new identity sets in. In line with that, Transformative Learning Theory (Wilner and Dubouloz, 2010) assumes that personal crises are the starting point of extremist radicalization. If these crises cannot be overcome with the existing resources (so-called meaning schemes), new patterns are sought that create identity. This is accompanied by an openness for extremist interpretations and offers.

Erikson (1968, p. 89) also described a link between identity and radical ideologies. Young people seem particularly vulnerable when social change appears threatening their identity, leading "to support doctrines offering a total immersion in a synthetic identity (extreme nationalism, racism, or class consciousness) and a collective condemnation of a totally stereotyped enemy of the new identity."

The Uncertainty-Identity Theory (Hogg, 2014) assumes that people who are uncertain about themselves and their identity are motivated to identify with such groups that provide clearly defined identity, beliefs, and behavioral prescriptions. Extremist ideologies and groups make such identity offers. In addition, the Integrated Threat Theory (Stephan and Stephan, 2000), which assumes that social changes (e.g., immigration) can pose threats to identity, has been used to explain especially xenophobia and right-wing extremism. One response to a threatened identity can be the advocacy of extremism (Blanka et al., 2012). Finally, the Significance Quest Theory (Kruglanski et al., 2018) states that identity, and in particular the need to maintain a meaningful identity is an influencing factor of extremism. This "theory identifies the need for personal significance as the dominant need that underlies violent extremism" (p. 108). However, none of the theories mentioned say that identity diffusion is relevant to the process of radicalization, whereby there are various reasons to focus on this special form of identity.

Marcia (1980) distinguishes four different states of identity in adolescence. Identity diffusion in his categorization is associated with low self-esteem, while moratorium and identity achievement are associated with high self-esteem. Low self-esteem, on the other hand, can result in attempts to increase it by adopting certain attitudes or certain behaviors. In contrast to identity foreclosure, which is also associated with low self-esteem, social relationships in a state of identity diffusion are problematic. The adolescent distances himself from the parents; instead, the peers or other authorities are important. In foreclosure, on the other hand, relations with the parents are not burdened; moreover, these are more significant than relations with other people. In a comparison of all four states of identity distinguished by Marcia (1980), identity diffusion thus appears to be particularly susceptible to extremist ideologies.

A relationship between identity diffusion and extremist attitudes can also be assumed with reference to Schwartz et al. (2009) stating that identity diffusion "is characterized by the absence of personally meaningful identity commitments and by confusion about how such commitments might be formed [. . .]. In an effort to obtain some sense of purpose, aimless-diffused individuals may attach themselves intensely to some group, expressing a willingness to unquestioningly do whatever the leaders of the group ask them to do." Extremist ideologies provide orientation, meaning, a sense of belonging, and a feeling of uniqueness. Edelstein (2003) also refers to identity diffusion as an influencing factor of right-wing extremism. Identity diffusion can lead to what he calls "negative identity" (p. 94), which implies "replacing normal sociability with exclusion and with affiliation with criminal gangs, absorption into authoritarian group structures, or the adoption of racist ideologies."

Furthermore, identity diffusion is related to aggression (Dammann et al., 2011), because the state of diffusion in itself is perceived as aversive and emotionally challenging, and it is associated with low self-esteem. Identity diffusion is accompanied by deficits in enduring feelings of ambivalence, sadness, or grief; it intensifies impulse actions and ultimately aggression (Dammann et al., 2011, p. 66). Part of extremist ideologies is to fight against groups classified as enemies.

For persons in the status of identity diffusion, the promise to us violence against enemies could be a reason to share these positions. Another reason could be the offer of getting easy answers to complex questions, which are part of many extremist ideologies. Thus, the shift toward extremist ideologies promise a rather easy way of a new identity. In line with these assumptions, the current study empirically analyses the relationship between identity diffusion and extremist attitudes. In the study, not only one form of extremist attitudes are considered. Instead, the relationship between identity diffusion and extremism is analyzed for right-wing, left-wing, and Islamist extremist attitudes in a sample of adolescents. Therefore, the current study refers to the period of life where the development of one's own identity takes place and young people are most open to the identification with negative identity offerings. Based on the different theoretical considerations Hypothesis 1 is as follows:

H1: Increasing levels of identity diffusion lead to an increase of right-wing, left-wing, and Islamist extremist attitudes.

RIGHT-WING, LEFT-WING, AND ISLAMIST EXTREMISM

Usually, extremism is characterized by the fact that it rejects the democratic constitutional state and wants to eliminate or restrict its constitutional (separation of powers, protection of fundamental rights) and democratic components (popular sovereignty, human fundamental equality; Goertz and Goertz-Neumann, 2018, p. 11). On a very general level, therefore, all forms of extremism have one thing in common: they seek to abolish the democratic order and introduce a different socio-political order in its place. A second common feature is that all extremist ideologies, with regard to the different socio-political order they seek to establish, make a strong distinction between their own group and one or more out-groups; at the same time, these out-groups are declared enemies of the new socio-political order they seek to establish. The various forms of extremism then differ considerably with regard to the concrete form of the new order and which groups are defined as enemies. The third common feature of all forms of extremism is that in order to achieve their ideological goals they accept the use of violence (Baier, 2018).

One common form of political extremism is right-wing extremism, aiming at introducing a nationalist socio-political order and distinguishing between the national own group and numerous foreign groups. This strong distinction between different population groups is called Social Darwinism. Other "races," foreigners in general, Muslims, and Jews are classified as out-groups, which is why racism, xenophobia, Islamophobia, and anti-Semitism are important parts of the right-wing extremist ideology. Consequently, violent acts are directed against these groups as well as against political opponents, namely from the left side of the political spectrum (Manzoni et al., 2018; Bjørgo, 2019).

A second form of political extremism is *left-wing extremism*. As a socio-political order it aims at the introduction of communism or anarchism. The enemy images of these orientations are on the one hand capitalism and on the other hand the state and its organs classified as repressive, especially the police. Although the police are also an enemy in other extremist ideologies, it is true for left-wing extremism that the police are at the very top of the ranking of enemy images (Schroeder and Deutz-Schroeder, 2015, p. 453). Out-group members of this form of extremism are capitalists, police officers and right-wing extremists (Manzoni et al., 2018). In left-wing extremism, it is therefore permitted or even necessary to use violence against these out-group members.

The central ideological goal of the last form of extremism analyzed here, *Islamist extremism*, is the introduction of a theocracy based on the Quran and the Sharia as a new socio-political order (Goertz and Goertz-Neumann, 2018); the introduction of a theocracy clearly distinguishes this form from other forms of extremism such as right-wing extremism, although there may well be overlaps in other areas (e.g., anti-Semitism)—this justifies considering Islamism as its own form of extremism. Islamist extremism is a form of political and not only religious extremism, which becomes obvious by regarding its political goal, which contain, inter alia, the liberation of Islamic states, expulsion of occupying powers from the west, and particularly the establishment of an Islamic state. The own group of right-believing Muslims is upgraded; the West in general and non-Muslims as well as non-traditional Muslims in particular are regarded as out-groups. In addition, the inhabitants of the western country in which the Muslims live are classified as an out-group. The willingness to use violence is, on one hand, directed against non-Muslims. On the other hand, terrorist attacks are seen as central means of achieving the goal of Islamist extremism (Vidino, 2013; Manzoni et al., 2018).

INFLUENCING FACTORS OF IDENTITY DIFFUSION AND EXTREMISM

The number of possible influencing factors of identity diffusion is large, and of extremism, it is even larger. Therefore, it is not possible at this point to provide a comprehensive discussion of all these influencing factors. Instead, we will concentrate mainly on the area of the family and the school.

Referring to Erikson's developmental theory, Edelstein (2003, p. 92) argues that family experiences are central to the formation of identity diffusion: "a destructive family dynamic, for example an authoritarian and repressive relationship [...] may threaten the process of identity formation and put [...ones] at risk of identity diffusion or disintegration." In line with that, Igarashi et al. (2009) found for Japanese university students that parental neglect as well as punishment were positively correlated with identity diffusion. If a form of parental education oriented toward obedience, oppression and punishment can reinforce identity diffusion, then it can be assumed, with regard to the educational style concept of Baumrind (1989), that *authoritative parenting* in particular should prevent identity diffusion. This form of parenting is characterized by the fact that parents both monitor their child's behavior and give emotional care. Various

studies have shown that the two educational style dimensions of monitoring and care protect children and adolescents from developing in a problematic manner (Leschied et al., 2008, Hoeve et al., 2009). Also, in relation to extremism it is reported that "at the family level, an appreciative/positive parenting behavior [...] had a protective effect on different kinds of extremism" (Lösel et al., 2018, p. 95). If both identity diffusion and extremism are reduced by positive parenting behavior, it can be assumed that the effect of parenting is at least partially mediated by identity diffusion: Because a positive upbringing leads to less identity diffusion, it also has a protective effect on extremism.

In addition to authoritative parenting, the empirical analyses will also consider *parental inconsistency*. This implies that children are brought up in contradictory ways. As a result, the predictability of parental behavior is low. Jaursch et al. (2009) and Hoeve et al. (2009), among others, were able to show that this parenting style is associated with problem behavior and delinquency of children and adolescents. Although there are no findings to date on the relationship between parental inconsistency and extremism, it can be assumed that this educational style also increases extremist attitudes. It can also be hypothesized that parental inconsistency influences identity diffusion, insofar as children and adolescents are confronted with contradictory information, expectations, norms, etc. on the part of their parents.

An additional influential factor of both identity diffusion and extremism is the experience of *critical life events*. Events as the divorce of parents, the death of one parent, a serious illness of one's own, etc. are crisis-like events that call the previous identity into question. The crisis situation triggers an identity crisis, the search for a new orientation, for meaning. An identity-related opening for new ideas is taking place (Baier, 2018). Extremism research has repeatedly examined the influence of such crisis experiences. According to the aforementioned Transformative Learning Theory (Wilner and Dubouloz, 2010) they can form the basis of radicalization. Sikkens et al. (2017) conclude in their study, that there is an impact of negative family experiences: The majority of the families they studied were affected by divorce, father's absence, illness, or deaths. These events may have reduced the level of attention and control over children's development so that parents were unable to respond adequately to problematic biographical changes of the children.

Extra-family factors also have an influence on identity diffusion and extremism. With the exception of one factor, however, they are not considered in the following analyses. One school-related factor is included, namely *academic performance*. The school context is seen as very important for identity development (Lannegrand-Willems and Bosma, 2006). With regard to extremism, Lösel et al. (2018) state on the basis of their review, "good school achievement [...] reduced far-right and far-left extremist attitudes and behavior" (p. 95). A low level of success at school can also be seen as a form of critical life event that can lead to identity diffusion. Meeus (1993), among others, was able to find support for the relationship between school success and identity development.

If the mentioned findings on family and school performance are summarized, Hypothesis 2 can be formulated as follows:

H2: Authoritative parenting reduces identity diffusion and extremism. Parental inconsistency, critical life events and poor academic performance, on the other hand, increase identity diffusion and extremist attitudes. Identity diffusion partially mediates the influence of these influencing factors on extremist attitudes.

In addition, the analyses take into account various control variables that can be assumed to be related to both identity diffusion and extremism. These include gender (e.g., Cramer, 2000; Davies, 2008), socio-economic status (e.g., Phillips and Pittman, 2003; Schmid, 2013) and ethnic origin (Thomas et al., 2016; Koser and Cunningham, 2018).

METHOD

Procedure

A sample of young people living in Switzerland is used to test both hypotheses. The aim of the underlying study was to determine the prevalence and influencing factors of three forms of political extremism in Switzerland. In order to get the sample, the following procedure was used: The survey did not claim to be representative for whole Switzerland, as this would have been very difficult to achieve for a total of 26 cantons. Instead, the survey was conducted in ten cantons, with urban and more rural as well as German-, French- and Italian-speaking cantons being included. The survey focused on young people aged between 17 and 18 on average. Accordingly, all types of schools in the ten cantons in which young people of this age are taught were included in the random sampling (vocational school, transitional education, grammar school, and technical/commercial secondary school). In the cantons, a random drawing of schools or school classes was then carried out in which surveys were to be conducted.

Students were provided with an online questionnaire during one school lesson (45 min); the surveys were administered by trained interviewers or teachers. During the survey, a class work atmosphere was created, i.e., the pupils were, for example, set apart and it was ensured that they completed the questionnaire in a disciplined manner. Anonymity and confidentiality was guaranteed. The parents of the students were informed with a letter before the survey and could give their veto to their children's participation. The students could also decide for themselves whether or not they wanted to take part in the survey. Data collection lasted from 4/24/2017 to 12/21/2017.

Sample

Five hundred ninety-five classes with all in all 8,317 students took part in the survey; 232 schools were originally approached, of which 123 ultimately participated in the survey. The total response rate of the survey was 39.1%. This is a relatively low rate because many schools refused to take part in the survey. If schools or classes agreed to participate, nine out of ten pupils took part in the survey.

The age of the respondents was asked in categories from "under 16 years" to "21 years and older," therefore the exact age distribution of the sample cannot be reported. However,

it can be stated that 83.7% of the respondents are between 16 and 19 years old. Only 3.1% of respondents reported being under 16 years old; 4.7% of respondents are 20 years, 8.6% of respondents are 21 years and older. Overall, therefore, a largely age-homogeneous group of young people between 16 and 19 was reached.[1] The gender ratio of the survey is balanced (male youths 49.7%, female youths 50.3%). Of all respondents, 52.0% attend vocational school, 12.3% attend technical/commercial secondary school, 26.4% attend a grammar school and 9.3 % undergo transitional training. Most students were born in Switzerland, 16.9% of the students were not born in Switzerland (the five most frequent mentioned countries were: Portugal, Italy, Germany, France, Kosovo).[2] In total, 44.7% of respondents come from rural areas (under 5,000 inhabitants), 37.6% from small towns (under 20,000 inhabitants), 17.7% from cities (over 20,000 inhabitants).

Measures

Identity diffusion was measured using items of the Inventory of Personality Organization (IPO) which is based on Kernberg (1978, 2006). The inventory includes 21 items that capture identity diffusion. According to the study by Igarashi et al. (2009), five items with high factor loading or high validity were selected. The items are "1. My life goals change frequently," "2. I pick up interests and then drop them," "3. I see myself in different ways at different times," "4. My tastes and opinions are borrowed from other people," and "5. People cannot guess how I'm going to behave." The answering scale reached from "1–not true at all" to "6–completely true." The five-item scale has a Cronbach's α of 0.73 and the selectivity of the items is at least 0.35. Igarashi et al. (2009) used the scale on an older, primarily student population, not on an adolescent population. This is a disadvantage, although the validity of the selected five items may be given. However, there are no established instruments for assessing identity diffusion, which is why this instrument was used.

In accordance with the definitions of extremism presented above, the three forms of extremist attitudes were measured using multi-item instruments which are based on existing instruments or have been partly newly developed (see Kamenowski et al., 2021 for references). All items are listed in the **Appendix**. *Right-wing extremism* was measured with ten items, with six of them measuring approval of ideological positions, with one item recording approval of the new socio-political order of nationalism and five items measuring the devaluation of out-groups. In addition, four items were taken into account that contain a positive attitude toward the use of violence against out-groups, whereby on the one hand the out-group of foreigners in general and on the other hand the out-group of left-wing extremists were considered (and verbal as well as physical violence). In total, the scale for measuring right-wing extremist attitudes comprises ten items, which could be agreed or disagreed from "1–not true at all" to "6–completely true." The reliability of the scale amounts to Cronbach's α. = 0.88; the selectivity of the items is at least 0.44.

Left-wing extremism was measured with nine items. Two items measure the approval of the establishment of a communist/anarchist socio-political order, three items measure the devaluation of out-groups (capitalists, state/police). A further four items measure approval of the use of violence, which is directed at political opponents (right-wing extremists) on the one hand and capitalists or state actors (police) on the other. All items could be agreed or disagreed from "1–not true at all" to "6–completely true." The reliability of the scale amounts to Cronbach's α = 0.79; the selectivity of the items is at least 0.33.

Eleven items were used to measure *Islamist extremism*. Seven items measure the degree of agreement with ideological goals of this extremism (two items: new socio-political order of theocracy, five items: revaluation of the self and devaluation of out-groups). Four items in turn measure the approval of using violence, which can be directed against non-Muslims (two items) or includes terrorism or the armed struggle of the Islamic state (two items). All items could be agreed or disagreed from "1–not true at all" to "6–completely true." The reliability of the scale amounts to Cronbach's α = 0.81; the selectivity of the items is at least 0.36.

As the means listed in the tables in the **Appendix** show, all statements are agreed to a rather low level. The items on ideological positions are more strongly agreed than the items on the use of violence. Moreover, it is shown that items that measure left-wing extremism are more strongly supported than items on right-wing extremism and Islamist extremism.[3]

Two different parenting styles are analyzed in the current study. First, *parental inconsistency* is measured by three items adopted from Krohne and Pulsack (1995). The items for an inconsistent parenting were "My (step-)parents announced something (e.g., a trip) and then dropped it in the water," "My (step-)parents scolded me when I did not expect it at all," and "My (step-)parents promised me to bring something, but then didn't do it." Second, *parental monitoring* as a component of authoritative parenting was measured with the following three items: "My (step-)parents knew where I was when I wasn't at home," "My (step-)parents knew what I was doing when I wasn't at home," and "My (step-)parents knew which friends I was with

[1]Extremist attitudes may not be most prevalent in this age group analyzed here. Existing analyses of right-wing extremism, however, show that right-wing extremist attitudes can also be found among younger people (aged 18 and older), although older people are even more likely to agree with right-wing extremist attitudes (Rippl, 2005). Existing studies on left-wing extremist attitudes, however, confirm that approval is higher among young people than among older people (Treskow and Baier, 2020, p. 29).

[2]The proportion of young people with a migration background is 52.1%, which is not surprising given the fact that Switzerland is a country of immigration. In order to operationalize the migration background, the adolescents were asked to indicate in which country the biological mother and father were born. If at least one parent was not born in Switzerland, then a migration background was assumed. The largest group of young people with a migration background is formed by Portuguese young people (6.6% of the total sample). The second largest migrant group consists of young people of whom at least one parent was born in Italy (5.7%), and the third largest group consists of young people of whom at least one parent was born in Kosovo (4.4%).

[3]It may be questionable whether all statements can be answered by all respondents, insofar as, for example, the items measuring Islamist extremism primarily refer to Muslims. However, individual statements may very well be agreed with by young people from other religious backgrounds (e.g., devaluation of western societies); moreover, young people for whom these statements do not apply were able to answer "do not agree." It therefore seems appropriate that all scales are analyzed for all adolescents.

when I was not at home." All items measuring parenting were related to the past in the formulation of the question ("Please think about parenting by your (step-)parents. How often did this happen in the past?") and students were asked how often the different forms of parental behavior happened. To answer the items, a 5-point scale reaching from "1–never" to "5–very often" were provided. Scale reliabilities are Cronbach's $\alpha = 0.63$ for inconsistency (selectivity at least 0.38) and $\alpha = 0.85$ for monitoring (selectivity at least 0.70).

To measure *critical life events* the experience of five different forms of personal crises have been queried, namely divorce or separation of parents, serious disease of a close person, serious disease of oneself, death of father or mother, and moving with loss of previous social contacts. All five life events were coded dichotomously (0–not experienced, 1–experienced). The five items were summed up to an index that can have values between 0 (no critical life event experienced) and 5 (all events experienced). On average, students reported 0.97 critical life events.

Academic performance was measured with an item whose wording was "How well do you assess your school performance?" The answer categories ranged from "1–excellent, I probably belong to the best" to "7–poor, I probably belong to the worst." The mean value of the sample is 3.34.

The variables sex (0–male, 1–female), country of birth (0–born in Switzerland, 1–born abroad[4]) and socio-economic status are used as control variables in the analyses. To measure status, the young people should rate the following statement (from "1–very poor" to "5–very good"): "How do you manage with the money (pocket money, money gifts, money you earn yourself) that you personally have at your disposal each month?" High scores thus stand for a high status. Other, more common status variables (e.g., income or occupational status of parents) were not measured in the survey.

Analytical Strategy

The relationships between the presented variables are subsequently examined by means of structural equation models, whereby the program Mplus 7.31 (Muthén and Muthén, 2015) was used. Using structural equation modeling allows to specify measurement models (latent variables) and structural models (relationships between latent variables). In a first step, the different measurement models were analyzed. After that, the different structural models were estimated. In accordance with the conventions, latent variables are shown as ellipses in the following figures, manifest variables as rectangles. In accordance with the previous explanations, the latent variables were recorded with three to eleven items.

[4]The variable "born abroad" was used for the analysis, not, for example, "migration background," because this implies that people have had migration experiences themselves, which can be assumed to represent some kind of critical life event. A migration background, on the other hand, means that people did not migrate themselves, but that it was usually their parents who had migration experiences.

RESULTS

The relationship between identity diffusion and extremist attitudes (Hypothesis 1) was tested using three separate structural equation models, one for each form of extremist attitude. The results of the different models including the model-fit values are summarized in **Figure 1** (standardized coefficients are shown). All models show a sufficient fit (Hu and Bentler, 1999); this means that the theoretical assumptions specified in the models fit well with the empirical observations. The fact that the Chi^2 statistics is significant (indicating a less good fit between theory and data) is due to the large sample. For this reason, this parameter should not be considered a relevant criterion for acceptance or rejection of the model, but other parameters such as the RMSEA and SRMR (good fit: $\leq$0.05) or the CFI and TLI (sufficient fit: $\geq$0.90) should be used for evaluation.

If the measurement model for identity diffusion is considered, we can speak of a reliable model, whereby the factor loading of the fourth item ($\lambda = 0.42$) is somewhat lower than the loadings of the first three items in particular. To model extremist attitudes, a second-order factor model was specified. The first-order factors measure ideological goals and approval of violence; in the case of approval of violence a distinction is made between the different out-groups against which violence may be carried out (e.g., right-wing extremism: foreigners in general and left-wing extremists). The three first-order factors are then combined to form the second-order factor "extremist attitude." In the model on left-wing extremist attitudes, this results in a strong error correlation between the two factors measuring approval of violence, which was taken into account in the model specification. In the other two models there is no significant error correlation between the two violence-approval-factors, which is why this was not modeled. All non-significant correlations in the model were deleted when the models were calculated and marked with "–" in **Figure 1**. Since the ideology dimension consists of six to eight items, depending on the form of extremism, there is no loading for some items shown in **Figure 1**. For reasons of clarity, the loadings of the individual items were not listed directly on the paths, but next to the items. For all items there are sufficiently high loadings on first-order factors. For each form of extremist attitudes, these in turn load sufficiently on the second-order factors, although the loadings do vary ($0.45 \leq \lambda \leq 0.92$).

The structural model indicates a significant correlation between identity diffusion and all forms of extremist attitudes. Identity diffusion significantly increases agreement to extremist attitudes. However, the different forms of extremist attitudes differ considerably: A strong correlation is found for left-wing extremist attitudes ($\gamma = 0.23$). A negligible correlation, which is however shown to be significant due to the sample size, is found for right-wing extremist attitudes ($\gamma = 0.05$). The effect on Islamist extremist attitudes lies in between ($\gamma = 0.13$).

All in all, the influence of the control variables on identity diffusion and extremist attitudes is low. Female respondents and respondents with a lower status show a higher level of identity diffusion; respondents born abroad do not differ in terms of identity diffusion from respondents born in Switzerland. Moreover, the variable born abroad is largely uncorrelated with

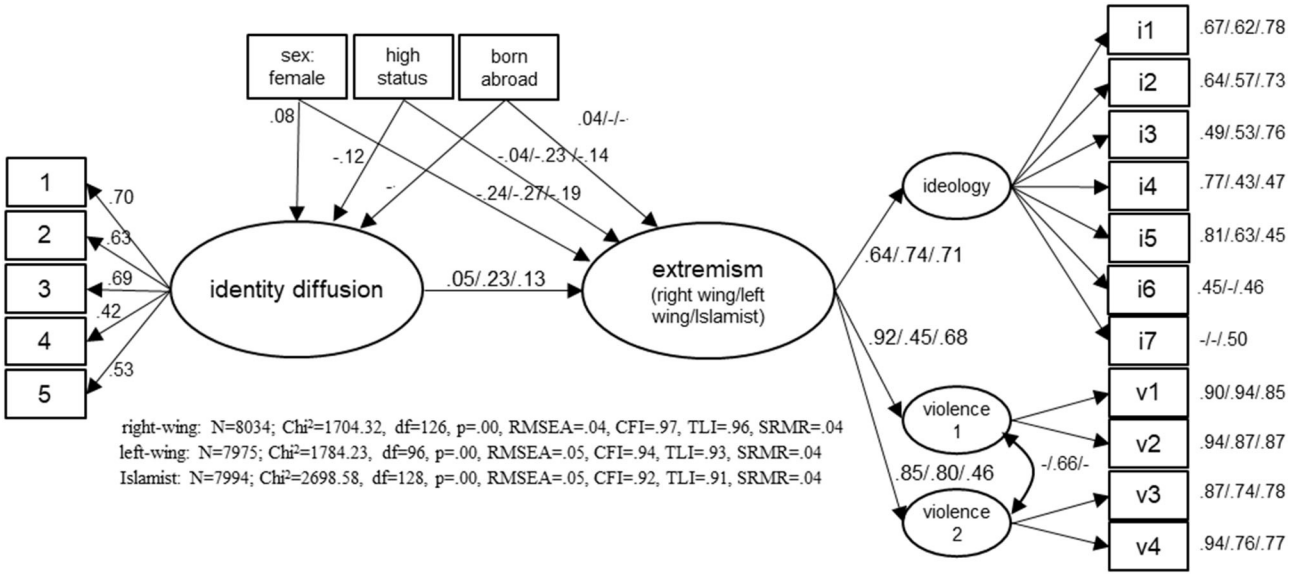

FIGURE 1 | Model to explain extremist attitudes by identity diffusion. Displayed: standardized coefficients; estimation procedure: Maximum Likelihood; order of displayed coefficients: left coefficient: right-wing extremism/medium coefficients: left-wing extremism/right coefficients: Islamist extremism; all coefficients significant at $p < 0.05$; "–" coefficient not significant at $p < 0.05$.

extremist attitudes. In contrast, female respondents significantly less frequently agree with all forms of extremist attitudes. It is also true that respondents with a higher status are less likely to agree with all forms of extremism. This effect is lowest for right-wing extremist attitudes.

The correlations expected in Hypothesis 2 were tested using extended structural equation models. The results are presented in extracts in **Figure 2**. We have refrained from reproducing the measurement models for identity diffusion and extremist attitudes that are already known from **Figure 1**. Also not shown are the control variables and their correlations with the newly included influencing factors. The models for all three forms of extremism in turn have sufficient fit values (see **Figure 2**); RMSEA, SRMR, CFI, and TLI values all have acceptable levels.

All four independent variables are related to identity diffusion, as assumed in Hypothesis 2. With the exception of parental inconsistency, however, the correlations are weak. Parental monitoring reduces identity diffusion ($\gamma = -0.07$); parental inconsistency ($\gamma = 0.18$), the experience of critical life events ($\gamma = 0.05$) and poor school performance ($\gamma = 0.08$) are associated with higher identity diffusion.

According to the results, extremist attitudes do not depend on poor school performance—no significant correlations are found for any form of extremism. The experience of critical life events is also only negligibly related to extremist attitudes (slightly increases left-wing extremist attitudes, slightly reduces Islamist extremist attitudes). With regard to the two educational styles, there are different correlations—depending on the form of extremism. Right-wing extremist attitudes are only slightly increased by parental inconsistency ($\gamma = 0.06$) and reduced by parental monitoring ($\gamma = -0.05$). For the other two forms of extremist attitudes, however, there are stronger risk-increasing effects of parental inconsistency (left-wing extremist attitudes: $\gamma = 0.12$, Islamist extremist attitudes: $\gamma = 0.16$) or protective effects for parental monitoring (left-wing extremist attitudes: $\gamma = -0.18$, Islamist extremist attitudes: $\gamma = -0.09$). Even when all factors in the model are taken into account, the correlations between identity diffusion and extremist attitudes are only slightly reduced.

In addition, some correlations had to be allowed between the independent variables in the model to obtain an acceptable model fit. Correspondingly, it is shown in **Figure 2** that the experience of critical life events is associated with higher parental inconsistency ($r = 0.20$) and lower parental monitoring ($r = -0.15$). In addition, parental inconsistency and parental monitoring correlate negatively ($r = -0.22$).

To assess whether identity diffusion mediates the effects of academic performance, life events, and parental styles on extremist attitudes indirect effects were calculated (see **Table 1**). They are composed of the product of the effect from the aforementioned variables on identity diffusion and of the effect from identity diffusion on either form of extremist attitudes. For example, the effect from poor academic performance on identity diffusion is $\gamma = 0.08$ and the one from identity diffusion on right-wing extremist attitudes is $\gamma = 0.04$. Thus, the indirect effect is $\gamma = 0.0032$. Rounded, this gives an effect of $\gamma = 0.00$. However, despite its small size, this effect, as some other small effects, is significant on a level of 0.05, which is due to the large sample size, whereby even very small, actually rarely relevant effects can become significant.

The indirect effects are generally low. This is especially true for right-wing extremist attitudes. For left-wing extremist attitudes, small significant mediating effects of identity diffusion can be observed for all four variables, for Islamic extremist attitudes for

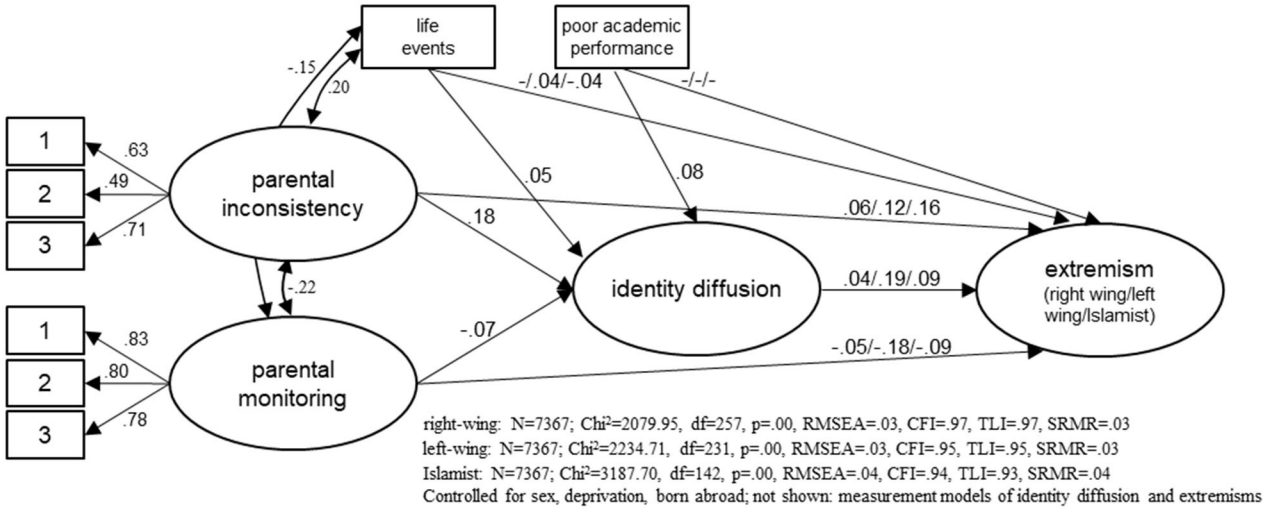

FIGURE 2 | Model to explain extremist attitudes by identity diffusion and other independent variables. Displayed: standardized coefficients; estimation procedure: Maximum Likelihood; left coefficients: model for right-wing extremism/medium coefficients: left-wing extremism/right coefficients: Islamist extremism; all coefficients significant at $p < 0.05$; "–" coefficient not significant at $p < 0.05$.

TABLE 1 | Indirect effects via identity diffusion.

	Right-wing extremist attitudes		Left-wing extremist attitudes		Islamist extremist attitudes	
	Indirect	***p***	**Indirect**	***p***	**Indirect**	***p***
Poor academic performance	0.00	0.026	0.02	0.000	0.01	0.000
Life events	–	–	0.01	0.002	0.00	0.008
Parental inconsistency	0.01	0.019	0.03	0.000	0.02	0.000
Parental control	−0.00	0.036	−0.01	0.000	−0.01	0.001

Displayed: standardized coefficients; estimation procedure: Maximum Likelihood.

poor academic performance, parental inconsistency, and parental control. The indirect effects of academic performance on left-wing and Islamic extremist attitudes are significant, while the direct effects are not. Therefore, left-wing and Islamic extremist attitudes are only affected by school performance when mediated by identity diffusion. For the parenting variables, in particular parental inconsistency, there are mediating effects, but the direct effects on extremist attitudes are ultimately stronger.

DISCUSSION

According to different theoretical approaches, identity diffusion can be assumed as a cause of extremist radicalization. In particular, it can be assumed that young people who are insecure about their identity are at risk to adopt extremist ideologies to create a stable identity because they offer a clear world view, orientation, and security. The current study empirically tests this relationship for three different forms of extremist attitudes (right-wing, left-wing, and Islamic) in a sample of adolescents in Switzerland. Results indicate an empirical correlation between identity diffusion and extremist attitudes (Hypothesis 1), which is strongest for left-wing extremist attitudes. The correlation with right-wing extremist attitudes is rather low. This difference seems to be hard to explain. Right-wing extremism presents a closed world view including a strong differentiation between native in-group and different out-groups (e.g., foreigners, jews, etc.), what should be attractive to people with a diffused identity. However, results show that left-wing, and to a smaller extent also Islamic extremist attitudes, are more attractive to people in a diffused identity status. First, it must be noted that some of the measurement instruments represent new developments; thus, the results may be attributed to measurement instruments that are still insufficiently established, especially with regard to left-wing extremist and Islamist extremist attitudes. Secondly, theoretical aspects may also be of importance, although we can only speculate in this regard due to the scarcity of research to date. A potential reason why left-wing extremism is more strongly correlated with identity diffusion could be that it is diffused itself. The aims of this form of extremism and its out-group concept are less pronounced. Left-wing extremism has different ideological foundations, subcultures and fields of action (cf. Pfahl-Traughber, 2020, among others), which could make it attractive to individuals with different (or diffused) needs.

Next to the analyses of the correlation between identity diffusion and extremist attitudes the study investigates the influence of different factors on identity diffusion. In relation to Hypothesis 2 results show that the effects of parental styles, critical life events, and academic performance are in the expected direction. However, correlations are rather weak except for parental inconsistency, which increases identity diffusion. With regard to school grades, it can be assumed that these represent only one area of school factors that could be less important for attitudes and behaviors in higher grades—and the young people studied here were in higher grades or had already completed school (and were attending vocational school)—than in younger grades. This does not mean that other school factors not studied here, such as school attachment, social integration into the class, etc., might be significant; further analyses of how school factors relate to identity and extremism are therefore desirable.

Additionally, critical life events do not affect young peoples' identities. This means that experiencing critical life events does not *per se* trigger identity diffusion. However, it is probably important how these events can be handled and which kind of personal and social resources are available to deal with these events. Finally, the effect of authoritative parenting cannot be fully assessed based on the results of the current study, because just one dimension, parental monitoring, was analyzed here. Future studies should include also other aspects of this parenting style, for instance, parental care. Results presented her show, that parental control alone does not prevent developing identity diffusion.

Additionally, based on Hypothesis 2 it was tested whether and to what extend identity diffusion functions as a mediator in the relationship between the familial and school variables and extremist attitudes. It can be stated first, that poor academic performance and critical life events have only small or no correlation with extremist attitudes and only small mediating effects can be observed. However, when these variables affect extremist attitudes, they affect them via identity diffusion. In addition, critical life events are not *per se* risk factors for radicalization. They increase identity diffusion to a small extent and also slightly extremist attitudes. The fact that critical life events contribute so little to the explanation of identity diffusion and extremism could be related to the fact that they are processed very differently from person to person, for example also in an internalizing form.

For the parenting variables, empirical results meet the assumptions formulated in Hypothesis 2. Parental inconsistency increases extremist attitudes, parental control reduces them. These effects are partly mediated by identity diffusion. Thus, it can be concluded, that identity diffusion is a mechanism that helps to understand and explain in which way family factors influence radicalization. Next to other factors, they form the identity status of young people and when this status is diffused, extremist ideologies are more easily accepted. Again, it has to be stated, that these correlations are weaker for right-wing extremism in comparison to the other two forms. Therefore, this form of extremism seems in some ways to be special. This may partly be explained by the status of right-wing ideologies in Switzerland. For instance, national thinking and a certain national pride have a long tradition in Switzerland and are not perceived as negative *per se*. Parts of the extreme right-wing ideology are possibly more accepted here than in other countries. Acceptance of this ideology is then less an expression of maladaptive development processes (such as identity diffusion), but at least up to a certain point part of the normal process of identity formation. Accordingly, Marcia (1980) suggests that the status of "identity achievement" correlates with right-wing extremism, not the status of identity diffusion. However, future studies would need to test this assumption.

The study has some limitations that should be mentioned at the end. For example, it is only a cross-sectional study, which does not permit any conclusive statements about cause-and-effect relationships. The response rate of the survey is below average for school-class based surveys, so that it cannot be ruled out that the groups ultimately reached are in some way selective. In addition, all data are based on self-reports; especially the ratings on extremist attitudes cannot be validated by other sources. With regard to the measuring instruments used, it should be mentioned as a limitation that, firstly, extremist attitudes were surveyed with partly newly developed instruments, which have to be validated in further studies. Secondly, identity diffusion was measured by a short scale consisting of only five items which were originally used on an older group of people. The results of the study should therefore be checked with more extensive and validated measuring instruments.

DATA AVAILABILITY STATEMENT

The data for all analyses can be accessed here: https://osf.io/wy8g7.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Cantonal Ethics Commission of the canton of Zurich. Written informed consent from the participants' legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.711466/full#supplementary-material

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Why True Believers Make the Ultimate Sacrifice: Sacred Values, Moral Convictions, or Identity Fusion?

Francois Alexi Martel[1], Michael Buhrmester[2], Angel Gómez[3,4], Alexandra Vázquez[3,4] and William B. Swann Jr.[1]*

[1]*Department of Psychology, University of Texas at Austin, Austin, TX, United States,* [2]*Institute of Cognitive and Evolutionary Anthropology, University of Oxford, Oxford, United Kingdom,* [3]*Facultad de Psicología, Universidad Nacional de Educación a Distancia, Madrid, Spain,* [4]*Artis International, Phoenix, AZ, United States*

Recent research has identified three promising candidates for predicting extreme behavior: sacred values, moral convictions, and identity fusion. Each construct is thought to motivate extreme behavior in unique ways: Sacred values trigger extreme actions when people are asked to compromise cause-related values for personal gain; moral convictions trigger extreme actions when a cause is aligned with one's moral compass; and identity fusion triggers extreme actions when a cause is inextricably associated ("fused") with the personal self. In six studies, we asked which of the three constructs (either alone or in combination) was most predictive of sacrifice for a cause. We measured all three constructs with respect to either of two causes: gun rights (Studies 1–3) or abortion rights (4–6). The outcome measure was endorsement of fighting and dying for the cause. Although all three constructs were significant predictors of the outcome measure when considered separately, identity fusion consistently emerged as the strongest predictor of endorsement of self-sacrifice when all three were considered simultaneously. This pattern occurred regardless of the target cause (gun or abortion rights), the participant's position on the cause (i.e., pro-gun or anti-gun, pro-choice, or pro-life), or nationality (American vs. Spanish). Also, there was no evidence that the predictors interacted to predict the outcome measure. Finally, a manipulation that threatened the validity of the personal self strengthened the relationship between endorsement of self-sacrifice and both (a) identity fusion and (b) moral convictions. The latter finding suggests that threats to the validity of one's self-views may amplify the extreme behaviors of true believers.

Keywords: identity fusion, sacred values, moral convictions, self-sacrifice, extremism, terrorism

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Tim Marsh,
Macquarie University, Australia

****Correspondence:***
Francois Alexi Martel
aleximartel@utexas.edu

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INTRODUCTION

> "The true believer is everywhere on the march, and both by converting and antagonizing he is shaping the world in his own image. And whether we are to line up with him or against him, it is well that we should know all we can concerning his nature and potentialities." (Hoffer, 1951)

Although Hoffer wrote over a half century ago, the "nature and potentialities" of true believers are still dimly understood. For example, the reasons why true believers enact extreme behaviors for their favored causes remain mysterious. Fortunately, three relatively new variables – sacred values, moral convictions, and identity fusion – may help illuminate the processes that motivate true believers. In this report, we ask which of these variables – either alone or in combination with each other – best predicts endorsement of fighting and dying for a cause. We chose these variables because we suspected that they may share a common element – the personal self – which might moderate the impact of each of these variables on endorsement of extreme behavior. We begin with a brief description of each of these variables.

Sacred Values, Moral Convictions, and Identity Fusion as Predictors of Extreme Behavior

Tetlock et al. (1996) and Tetlock (2003) introduced the sacred value construct to explain what happens when there is a clash between an individual's religious and economic imperatives. They proposed that when the moral community deems a value sacred, members of the community are expected to strenuously resist the use of economic incentives to persuade them to abandon the value. Later authors (Atran and Ginges, 2015) removed the religious component from sacred values, contending that "although the term 'sacred values' intuitively denotes religious belief, … we use the term to refer to any preferences regarding objects, beliefs, or practices that people treat as both incompatible or nonfungible with profane issues or economic goods."

The defining characteristic of sacred values is absolute and unequivocal adherence to the value. In fact, non-negotiability is so central to the sacred values construct that some investigators (e.g., Sheikh et al., 2016; Gómez et al., 2017; Vázquez et al., 2020) measure the construct using a single-item assessment of non-negotiability (operationalized as refusal to compromise a value in exchange for material benefits). Consistent with expectation, research has indicated that those who claim that a value is non-negotiable are more inclined to endorse extreme behaviors to defend that value, including even sacrificing their life, letting their family suffer, killing civilians, undertaking a suicide attack, and torturing women and children (Atran and Ginges, 2015; Gómez et al., 2017).

Moral convictions could also motivate true believers to make extreme sacrifices. These convictions are feelings regarding what is right and wrong that constitute core aspects of the personal self (Skitka et al., 2005, 2021). Moral convictions theoretically foster a principled obligation to act that, in turn, predicts intentions to enact actions that advance the cause (Sabucedo et al., 2018). Like sacred values, moral convictions are perceived to be objectively true and universally applicable (Skitka, 2014) and are associated with an unwillingness to compromise even in the face of competing desires or concerns (Skitka, 2014). For example, whereas a strong anti-abortion belief might rule out abortion under *most* circumstances, a moral conviction against abortion will rule out abortion under *all* circumstances – even if, for example, it is certain that both the mother and fetus will die during childbirth.

Yet, moral convictions are distinct from sacred values in at least one respect. Whereas sacred values are theoretically dictated by the moral community, moral convictions are understood to be independent of establishment, convention, rules, or authorities (Skitka et al., 2008). As such, normative and majority considerations should have relatively little influence on moral convictions or associated obligations to act. For example, Americans who held a moral conviction against torture resisted a majority norm that supported the torture of suspected terrorists (Aramovich et al., 2012).

Identity fusion is a third variable that may motivate the extreme actions of true believers. Identity fusion occurs when an abstraction (a group, cause, or even another person) comes to define the self. When people become fused to a target group or cause, the boundaries between the self and the target become porous and the personal self becomes one with the target. This union creates a sense of equivalence of the self and the target that makes defending the target equivalent to defending the self (Swann et al., 2009, 2012). As a result, strongly fused persons are especially prone to enact pro-group or pro-cause behaviors when under threat from perceived adversaries (Swann et al., 2014; Fredman et al., 2017). The bulk of past research on identity fusion has emphasized the antecedents and consequences of identity fusion with groups (see, for example, Jong et al., 2015; Swann and Buhrmester, 2015; Gómez et al., 2020). Nevertheless, there is now work demonstrating the consequences of being fused with various causes, including religion (Fredman et al., 2017), political party (Buhrmester et al., 2012; Ashokkumar et al., 2019; Talaifar and Swann, 2019), gun and abortion rights (Ashokkumar et al., 2020), and even politicians, such as Donald Trump (e.g., Kunst et al., 2019; Martel et al., in preparation).

Although sacred values, moral convictions, and identity fusion have garnered considerable attention, efforts to integrate them have been limited. One reason for this may be that researchers have been mindful of important distinctions between these approaches. For example, whereas the sacred values and moral conviction formulations explicitly include a moral component, the identity fusion formulation includes no explicit moral component. Nevertheless, the identity fusion formulation may accommodate moral considerations because such considerations represent an aspect of the personal self for most people. For this reason, aligning the personal self with a target of fusion is tantamount to imbuing the target with moral overtones. From this vantage point, the identity fusion formulation is a broader construct that can readily accommodate material as well as moral beliefs (e.g., Carnes and Lickel, 2018; Chinchilla et al., 2021).

Methodological factors have also hampered efforts to assess the relationship between the three potential predictors of extreme behaviors of true believers. For example, the use of single-item measures of fusion and sacred values (Atran and Ginges, 2015) has precluded factor analytic assessments of the relationship between the two variables. In addition, past researchers have

typically focused on one cause and sampled participants from one country. To address these limitations, in our research, we (a) used multi-item measures of each predictor, (b) tethered measures of the three potential predictors to either of two specific causes (abortion or gun rights), and (c) sampled participants from two countries (United States and Spain). The outcome measure was endorsement of fighting and dying for the cause under scrutiny. This allowed us to systematically assess the relationship between the predictors and compare the capacity of each to predict willingness to fight and die for a cause both alone and in interaction with one another.

Is There a Common Mechanism Underlying the Effects of Sacred Values, Moral Convictions, and Identity Fusion?

Our research also asked why true believers care so deeply about sacred values, moral convictions, and identity fusion. Our search for answers to this question prompted us to consult theory and research on attitudes and behavior. This literature indicates that people appear to care most about beliefs that are highly important and central to the personal self (e.g., Petty and Krosnick, 1995). Hence, true believers may simply regard sacred values, moral convictions, and targets of fusion as particularly relevant to their personal selves. We tested this possibility in our research using a series of four manipulations, each designed to increase the salience of the personal self in a unique way. We reasoned that insofar as the personal self underlies the impact of a given predictor variable (i.e., sacred values, moral convictions, or identity fusion) on willingness to self-sacrifice for a cause, increasing the salience of the personal self would strengthen the relationship between that predictor variable and willingness to fight and die for the cause.

To select manipulations to increase the salience of the personal self, we drew upon the social psychological literature on self and identity. This literature pointed to two distinct approaches for increasing the salience of the personal self. The most common approach involves encouraging participants to affirm some aspect of the personal self. We considered three such self-affirmation manipulations. First, participants completed a series of 5 sentences, each of which began with "I am a" by responding with the first things that came to mind (Kuhn and McPartland, 1954). Second, participants imagined the most personal goals and dreams they have hoped to accomplish before their death as well as the legacy they hoped to leave behind (*cf.* Klackl and Jonas, 2019). Third, participants wrote about what makes them unique (Silvia and Eichstaedt, 2004), that is, "What makes you, 'you?'"

As an alternative to the three self-affirmation manipulations, in our final study, we employed self-*dis*confirming feedback. The rationale underlying this manipulation comes from self-verification theory (Swann, 1983). Specifically, when people receive feedback from others that threatens aspects of their personal self, they may systematically work to refute the disconfirming feedback (e.g., Swann and Hill, 1982). Researchers have shown that self-disconfirming feedback increases the relation between identity fusion and endorsement of extreme behavior (Swann et al., 2009; Gómez et al., 2011).

OVERVIEW OF OUR RESEARCH

As noted above, our studies focused on two different causes. Study cluster I (#1–3) focused on gun rights, and study cluster II (#4–6) focused on abortion rights. Also, the first study within each cluster (i.e., #1 and #4) included no manipulation of the personal self, which is to say only four of the six studies included such a manipulation (Studies #2–3, #5–6). Finally, Studies #1–5 recruited American participants through the Prolific crowdsourcing platform; Study 6 used a snowball technique facilitated by introductory psychology students from Spain.

We addressed four primary questions. First, what was the relationship of the three predictors to one another? Second, to what degree were each of the three predictors uniquely related to endorsement of extreme behavior? Third, were the predictors stronger when predicting the outcome variable on their own or in interaction with each other? Finally, with respect to the studies that had experimental manipulations (# 2, 3, 5, 6), did the manipulation interact with any of the three predictors in predicting endorsement of extreme behavior? We address each of these four questions in the research that follows.

STUDY CLUSTER I: SACRED VALUES, MORAL CONVICTIONS, AND IDENTITY FUSION AS PREDICTORS OF WILLINGNESS TO SELF-SACRIFICE FOR THE GUN RIGHTS CAUSE

Study 1

Method

Participants

We recruited 311 American participants through Prolific. In this study and all subsequent studies, we excluded participants who failed attention checks, failed to complete the survey, or were outliers on the predictor or outcome variables. Outliers were identified by examining box plots of the variables and through the use of R's "boxplot.stats" function. After exclusions, 291 participants remained (130 male, 157 female, 4 other; ages 18–73; 102 pro-gun, 189 anti-gun).

Procedure

All studies reported here shared a common core procedure which included introducing the study as an investigation of participants' opinions toward a controversial contemporary issue. Participants then indicated whether they opposed or supported gun restrictions (Studies 1–3) or access to abortion (Studies 4–6). They then completed measures of the three target predictors (sacred values, moral convictions, and identity fusion). As Studies 1 and 4 had no experimental manipulation, participants

TABLE 1 | Correlations between predictors in all studies.

Study	Sacred values and moral convictions	Sacred values and identity fusion	Moral convictions and identity fusion
1	0.58	0.54	0.52
2	0.72	0.66	0.62
3	0.66	0.54	0.53
4	0.58	0.54	0.49
5	0.53	0.26	0.28
6	0.60	0.45	0.54

For all correlations, ps < 0.001.

TABLE 2 | Factor analyses loadings of predictors in Study 1.

Items	Factor 1	Factor 2	Factor 3
Fusion 1	**0.847**	0.138	
Fusion 2	**0.836**	0.142	0.164
Fusion 3	**0.765**	0.274	0.259
Fusion 4	**0.683**	0.267	0.297
Fusion 5	**0.686**	0.228	0.114
Fusion 6	**0.603**	0.156	0.233
Fusion 7	**0.628**	0.229	0.332
Sacred values 1	0.258	0.295	**0.652**
Sacred values 2	0.175	0.301	**0.556**
Sacred values 3	0.233	0.274	**0.907**
Sacred values 4	0.289	0.262	**0.788**
Moral convictions 1	0.241	**0.549**	0.220
Moral convictions 2	0.190	**0.734**	0.238
Moral convictions 3	0.131	**0.744**	0.234
Moral convictions 4	0.238	**0.767**	0.238
Moral convictions 5	0.254	**0.693**	0.213

Here and in the SOM, blank spaces indicate that the factor loading value was very small (below absolute value of 0.1). Bold values indicate the strongest factor loading for each item.

completed the outcome measure (willingness to self-sacrifice for their position on the gun/abortion cause) immediately after competing measures of the three predictors. In Studies 2–3 and 5–6, participants received the experimental manipulation prior to completing the outcome measure.

Measures of Predictors and Outcome

In all 6 studies, participants completed, in random order, the measures of the three predictors (sacred values, moral convictions, and identity fusion). The outcome measure was always willingness to self-sacrifice for the cause. We describe these measures below and present the relevant descriptive statistics in SOM-1.

Predictor 1: Sacred Values. Our primary measure of sacred values was a continuous, 4-item measure adapted from Hanselmann and Tanner (2008). Participants indicated whether their stance on the gun rights issue was open to material trade-offs (e.g., "My position on gun control is something that I should not sacrifice, no matter what the benefits (money or something else)"; "My position on gun control is non-negotiable"). Participants indicated the degree to which they agreed with each statement on scales ranging from 1 (*completely disagree*) to 7 (*completely agree*). In our final two studies, we also assessed sacred values using a modified version of the single-item, dichotomous measure employed by Sheikh et al. (2016). Because the continuous measure was a stronger predictor than the dichotomous one, we present the results of the continuous predictor in the body of the paper and relegate the results of the dichotomous predictor to the SOM (see SOM-5).

Predictor 2: Moral Convictions. We used the 5-item measure of moral convictions (Morgan, 2012; Skitka, 2014) to measure the degree to which participants' stance on the gun rights issue is related to their personal sense of morality (e.g., "To what extent do you feel your position on gun control is based on strong personal principles?"; "How much are your feelings about your position on gun control connected to your core moral beliefs and convictions?"). All items were measured on scales ranging from 1 (*not at all*) to 5 (*extremely*).

Predictor 3: Identity Fusion. Participants completed a measure of identity fusion with their position on the gun rights cause using a modified version of Gómez et al.'s (2011) seven-item continuous fusion scale (e.g., "I am strong because of my position on gun control"; "I am one with my position on gun control"). The respondents indicated the degree to which each statement reflected their relationship with the gun rights cause on scales ranging from 1 (*completely disagree*) to 7 (*completely agree*).

Outcome Measure: Willingness to Self-Sacrifice. We measured participants' willingness to self-sacrifice in defense of their position on the gun rights cause with the 7-item scale developed by Swann et al. (2009). The items assessed willingness to fight or even die in defense of the cause (e.g., "I would fight someone threatening my position on gun control"; "I would sacrifice my life if it advanced my position on gun control"). On scales ranging from 1 (*completely disagree*) to 7 (*completely agree*), respondents indicated the degree to which each statement reflected their willingness to self-sacrifice for the gun control cause.

After responding to the outcome measure, participants then completed attention check items and demographic questions (see SOM-6). Finally, participants were debriefed.

Note: All R code and data files used for analyses are publicly available at OSF.[1]

Results

Covariation Among Predictors

As can be seen in **Table 1**, the correlations between the three predictors were moderate to substantial in most of the six studies (breaking samples down into participants who favored or opposed a given cause did not alter our conclusions).

We also entered the three predictors into a series of factor analyses using oblimin rotation. With the exception of Study 6, the three predictors consistently loaded strongly to three unique factors (see **Table 2** for an example). However, in Study 6, all items for the sacred values and moral convictions scales both loaded strongly on one factor, the first two identity fusion items loaded strongly on another factor, and the remaining

[1]https://osf.io/p58ks/?view_only=1e250b9e2ff84465a0d9cffee89260ae

five fusion items loaded on the final factor. The factor loadings for all six studies are presented in the SOM (SOM-2).

Predictive Validity of the Three Predictors

Analytic Approach and Statistical Notes Pertaining to All Studies. To determine whether sacred values, moral convictions, and identity fusion interactively predicted increased willingness to self-sacrifice for a cause, in each study, we tested for the 3-way interaction with a regression model that included the three-way interaction between the predictors, all two-way interactions, and all single predictors. To test for the 2-way interactions, we ran 3 unique models which contained each possible two-way interaction (fusion × sacred values, fusion × moral convictions, and sacred values × moral convictions) and the corresponding single predictors.

Next, to determine which predictor was the strongest predictor, we ran a simultaneous multiple regression model with sacred values, moral convictions, and identity fusion as predictors and self-sacrifice for a cause as the outcome. Finally, in the four studies which contained experimental manipulations, we ran regression models to test possible two-way interactions between each of the primary predictors with the experimental manipulation and then report any main effect of the manipulation alone. Here and hereafter, all regression models include the unstandardized beta coefficients, the unstandardized confidence intervals, the t test and associated value of p for the given effect, and the total model adjusted R^2.

Let us add two important statistical notes. First, given the substantial correlations between the three predictors, we were concerned that multicollinearity could influence our findings. This concern was not supported. That is, in all six studies, the variance inflation factors never exceeded 2.50 (the specific values are presented in SOM-3). Second, to determine whether the three predictors were associated with the outcome measures when they were considered individually (i.e., without controlling for each other), we also ran single-predictor regressions (i.e., sacred values, moral convictions, and identity fusion) in which the outcome was willingness to self-sacrifice and the bivariate correlations between each predictor and willingness to self-sacrifice (see SOM-4). As shown in the **Supplementary Material**, sacred values and especially moral convictions were slightly more potent in single-predictor regressions than they were in the simultaneous multiple regressions. Sacred values were significant in Studies 1–4 and Study 6 ($ps < 0.05$); moral convictions were significant in all six studies ($ps < 0.01$) and identity fusion was as well ($ps < 0.001$).

Analyses of Study 1. We first tested for the presence of triple- and two-way interactions between the three predictors (sacred values, moral convictions, and identity fusion). No significant two- nor three-way interactions between the three predictor variables emerged, $ps > 0.148$.

Subsequent inspection of the main effects (with the interactions removed) revealed that identity fusion was the strongest predictor overall. That is, both identity fusion [$B = 0.18$, 95% CI (0.11, 0.25), $t(287) = 4.94$, $p < 0.001$, total model $R^2_{adj} = 0.19$] and sacred values [$B = 0.08$, 95% CI (0.01, 0.16), $t(287) = 2.27$, $p = 0.024$] emerged as significant predictors. The difference between the effect size for fusion versus sacred values was marginally significant ($z = 1.85$, $p = 0.06$). Moral convictions ($p = 0.828$) were not a significant predictor in this model.

Study 2

Method

Participants

We recruited 122 American participants through Prolific. After exclusions, 108 (47 male, 58 female, 3 other; ages 18–79; 32 pro-gun, 76 anti-gun) remained.

Procedure

Participants first completed the three predictors. Then, in the self-affirmation condition, participants received a manipulation designed to increase the salience of the personal self. Specifically, participants responded to five statements that began "I am a …." In the control condition, the five statements began, "Fish are …." Then, on the following page, in both conditions participants were asked to write a brief explanation of the words they used to fill in the blanks. After the manipulation, participants completed the same outcome measure used in Study 1. Please see SOM-7 for the full text of all the manipulations.

Results

We first tested for the presence of triple- and two-way interactions between the three predictors (sacred values, moral convictions, and identity fusion). No significant two- nor three-way interactions between the three predictor variables emerged, $ps > 0.157$.

Subsequent inspection of the main effects (with the interactions removed) revealed that identity fusion was the only significant predictor [$B = 0.37$, 95% CI (0.21, 0.53), $t(104) = 4.68$, $p < 0.001$, total model $R^2_{adj} = 0.28$]; neither sacred values ($p = 0.391$) nor moral convictions ($p = 0.422$) were significant.

Finally, there were no significant main nor interactive effects of the experimental manipulation on willingness to self-sacrifice for the cause ($ps > 0.269$).

Study 3

Method

Participants

For Study 3, we recruited 121 American participants through Prolific. After exclusions, 113 participants (45 male, 68 female; ages 18–70; 39 pro-gun, 74 anti-gun) remained.

Procedure

Participants completed the measures of the three predictors. Then, in the self-affirmation condition, participants received a manipulation designed to increase the salience of the personal self. Specifically, participants in the self-affirmation condition wrote about their goals prior to dying and the legacy they hoped to leave behind ("Please take a few minutes to write about what comes to mind when you think about your death. Please focus on (1) the most personal goals and dreams you'll

have hoped to accomplish before death and (2) the legacy that you hope to leave behind. Be as specific or general as you would like"). In the control condition, participants were asked to write about fish ("Please take a few minutes to write about fish and anything that comes to mind regarding them. Be as specific or general as you would like"). After responding to one of the two prompts, all participants then completed the outcome measure.

Results

We first tested for the presence of triple- and two-way interactions between the three predictors (sacred values, moral convictions, and identity fusion). No significant two- nor three-way interactions between the three predictor variables emerged, $ps > 0.418$.

Subsequent inspection of the main effects (with the interactions removed) revealed that identity fusion was a marginally significant predictor of the outcome measure [$B = 0.14$, 95% CI (−0.002, 0.29), $t(109) = 1.95$, $p = 0.054$, total model $R^2_{adj} = 0.14$] but sacred values ($p = 0.466$) and moral convictions ($p = 0.339$) were not.

There were also no interactions between the manipulation and sacred values, moral conviction, or identity fusion in Study 3 ($ps > 0.549$). Finally, there was no significant main effect of experimental manipulation on willingness to self-sacrifice for cause [$t(111) = 1.18$, $p = 0.242$].

Summary of Findings From Cluster 1 Studies

Factor analytic results of our first three studies indicate that measures of sacred values, moral convictions, and identity fusion load onto separate factors. Moreover, when we compared the relative utility of the three variables in predicting willingness to sacrifice for the gun rights cause, identity fusion emerged as the strongest predictor, and there was no evidence of interactions between the three predictors. Finally, attempts to experimentally increase the salience of the personal self by affirming the personal self failed to increase endorsement of self-sacrifice for the cause.

STUDY CLUSTER 2: SACRED VALUES, MORAL CONVICTIONS, AND IDENTITY FUSION AS PREDICTORS OF WILLINGNESS TO SELF-SACRIFICE FOR THE ABORTION RIGHTS CAUSE

Intrigued by these findings, we conducted three follow-up investigations. One goal was to determine whether the findings from study cluster I would generalize to an unrelated cause, abortion rights, and to a new sample, Spaniards. In addition, to determine whether self-confirming versus self-disconfirming manipulations would differentially influence the relationship between sacred values, moral convictions, or identity fusion and willingness to self-sacrifice, we introduced appropriate manipulations in Studies 5 and 6, respectively.

Study 4

Method

Participants

We recruited 303 American participants through Prolific, 275 of which remained after exclusions (116 male, 152 female, 7 other; ages 18–72; 56 pro-life, 219 pro-choice).

Procedure

There was no experimental manipulation; instead, participants proceeded directly to the outcome measure after completing measures of the three predictors. Finally, in all studies, participants completed attention check items and demographic questions and then were debriefed.

Results

We first tested for the presence of triple- and two-way interactions between the three predictors (sacred values, moral convictions, and identity fusion). No significant two- nor three-way interactions between the three predictor variables emerged, $ps > 0.161$.

Subsequent inspection of the main effects (with the interactions removed) revealed that identity fusion was the only significant predictor of willingness to self-sacrifice [$B = 0.29$, 95% CI (0.20, 0.39), $t(271) = 6.10$, $p < 0.001$, total model $R^2_{adj} = 0.20$]; sacred values ($p = 0.838$) and moral convictions ($p = 0.328$) were not significant.

Study 5

Method

Participants

We recruited 342 American participants through Prolific. After exclusions, 288 remained (152 male, 133 female, 3 other; ages 18–64; 288 pro-choice). In this study, we only recruited pro-choice participants due to their greater availability and the fact that there were no apparent differences between pro-choice and pro-life participants in the foregoing study.

Procedure

Participants first completed measures of the three predictors. Then, in the self-affirmation condition, participants received a manipulation designed to increase the salience of the personal self. Specifically, participants imagined that they were describing their inner selves to a close friend ("Please take 2 min to tell us about yourself. Imagine yourself with your closest friend and your friend asks you "What makes you 'you?'" Imagine your friend isn't interested in superficial qualities and really wants to know about your enduring, deepest self"). In the control condition, participants contemplated the existence of alien life ("Please take 2 min to give your opinion about whether there is intelligent life in the universe other than on Earth"). Participants then completed the outcome measure.

Results

We first tested for the presence of triple- and two-way interactions between the three predictors (sacred values, moral convictions,

and identity fusion). No significant two- nor three-way interactions between the three predictor variables emerged, $ps > 0.253$.

Subsequent inspection of the main effects (with the interactions removed) revealed that identity fusion was a significant predictor [$B = 0.35$, 95% CI (0.26, 0.44), $t(284) = 7.75$, $p < 0.001$, total model $R^2_{adj} = 0.22$] and so too was moral convictions [$B = 0.24$, 95% CI (0.08, 0.39), $t(284) = 3.05$, $p = 0.003$], but not sacred values ($p = 0.066$). The significant effect of moral convictions in Study 5 was an exception to the overall pattern reported in this paper, but note that even so the fusion effect was stronger than the moral convictions effect ($z = 3.16$, $p < 0.001$).

There were no interactive effects of the manipulation and sacred values, moral conviction, or identity fusion in Study 5 ($ps > 0.491$), nor was there a main effect of the manipulation ($p = 0.624$).

Study 6

Method

In contrast to the first five studies, in this study, we attempted to threaten the personal self by presenting participants with feedback that threatened their self-views, a manipulation which has been used in previous research to effectively activate the personal self (Swann et al., 2009; Gómez et al., 2011). To enhance the plausibility of the feedback manipulation, this study was conducted in two waves. Specifically, during wave one, participants completed some questionnaires. We ostensibly showed their responses to a team of psychologist evaluators prior to wave two, thus providing a basis for the feedback manipulation.

Participants

We recruited participants using the snowball technique wherein Spanish Psychology undergraduates asked their acquaintances to participate. Participation was voluntary and uncompensated. We recruited 267 Spanish participants in the first wave; 199 participants completed both waves, and 197 of these participants remained after exclusions and were included in our analyses (42 male, 155 female; ages 20–68; 19 pro-life, 178 pro-choice).

Procedure

In wave one, we measured the three predictors (sacred values, moral convictions, and identity fusion) with respect to the abortion cause. 1 week later, participants received an email inviting them to complete wave two of the study, to which they responded within 1 to 39 days. In wave two, we introduced the feedback manipulation. Participants learned that, based on their responses during wave one, they had been evaluated by a group of psychologists who had assessed how the participant perceived him/herself as well as how the participant actually is on five dimensions: shyness, insecurity, stubbornness, nervousness, and distrust. Participants in the self-disconfirming condition learned that the psychologists had concluded that, for four of the five dimensions, there was a discrepancy between participants' self-views and their actual characteristics. In contrast, participants in the verifying condition learned that the psychologists had concluded that, for four of the five dimensions, their self-views agreed with their actual characteristics. Participants in the control condition learned that due to a technical problem, they would not receive any feedback from the evaluators. After the feedback manipulation, participants completed the outcome measure, willingness to self-sacrifice for the abortion cause.

Results

We first tested for the presence of triple- and two-way interactions between the three predictors (sacred values, moral convictions, and identity fusion). No significant two- nor three-way interactions between the three predictor variables emerged, $ps > 0.479$.

Subsequent inspection of the main effects (with the interactions removed) revealed that identity fusion was a significant predictor [$B = 0.24$, 95% CI (0.14, 0.35), $t(193) = 4.51$, $p < 0.001$, total model $R^2_{adj} = 0.12$], but the other two predictors were not, sacred values ($p = 0.905$), moral convictions ($p = 0.879$).

We then tested whether each of the three primary predictors interacted with the experimental manipulation in three separate regression models in which we dummy-coded the self-disconfirming and verifying condition against the baseline control condition. When we regressed willingness to self-sacrifice for the cause on one of the three primary predictors, the two dummy-coded variables, and the two interaction terms between the primary predictor and the dummy-coded variables, a significant interaction emerged between the experimental manipulation and identity fusion. As shown in **Figure 1**, identity fusion was more strongly predictive of willingness to self-sacrifice in the self-disconfirming condition compared to the control condition [$B = 0.29$, 95% CI (0.09, 0.50), $t(191) = 2.82$, $p = 0.005$, total model $R^2_{adj} = 0.19$], whereas the predictive power of identity fusion did not differ between the verifying and control conditions [$B = 0.08$, 95% CI (−0.13, 0.28), $t(191) = 0.77$, $p = 0.444$]. Simple effects analyses of the results displayed in **Figure 1** indicated that fusion with abortion was a stronger predictor of willingness to self-sacrifice for the cause in the self-disconfirming condition [$B = 0.43$, $t(191) = 5.79$, $p < 0.001$] than in the verifying condition [$B = 0.22$, $t(191) = 2.93$, $p = 0.004$] or the control condition [$B = 0.14$, $t(191) = 1.86$, $p = 0.064$].

There was also a significant interaction between moral convictions and the experimental manipulation. As shown in **Figure 2**, moral convictions were significantly more strongly predictive of willingness to self-sacrifice in the self-disconfirming condition compared to the control condition [$B = 0.62$, 95% CI (0.17, 1.07), $t(191) = 2.71$, $p = 0.007$, total model $R^2_{adj} = 0.08$], whereas the predictive power of moral convictions did not differ between the verifying and control conditions [$B = 0.19$, 95% CI (−0.15, 0.54), $t(191) = 1.11$, $p = 0.270$]. Simple effects analyses of the results displayed in **Figure 2** indicated that holding moral convictions toward one's position on the abortion cause was a stronger predictor of willingness to self-sacrifice for the cause in the self-disconfirming condition [$B = 0.68$, $t(191) = 3.55$, $p < 0.001$] than in the verifying condition [$B = 0.26$,

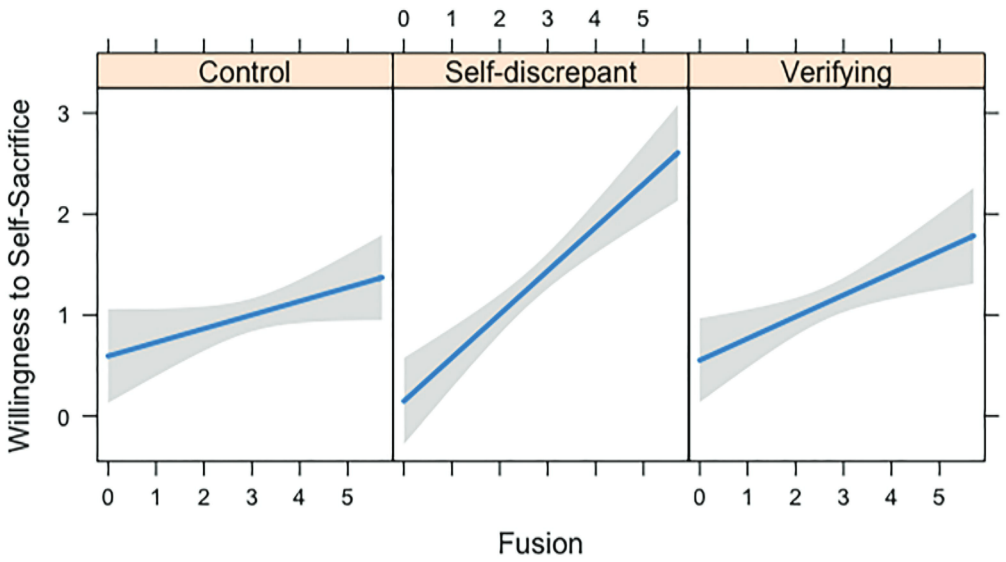

FIGURE 1 | Study 6 interaction between fusion and experimental manipulation in predicting willingness to self-sacrifice.

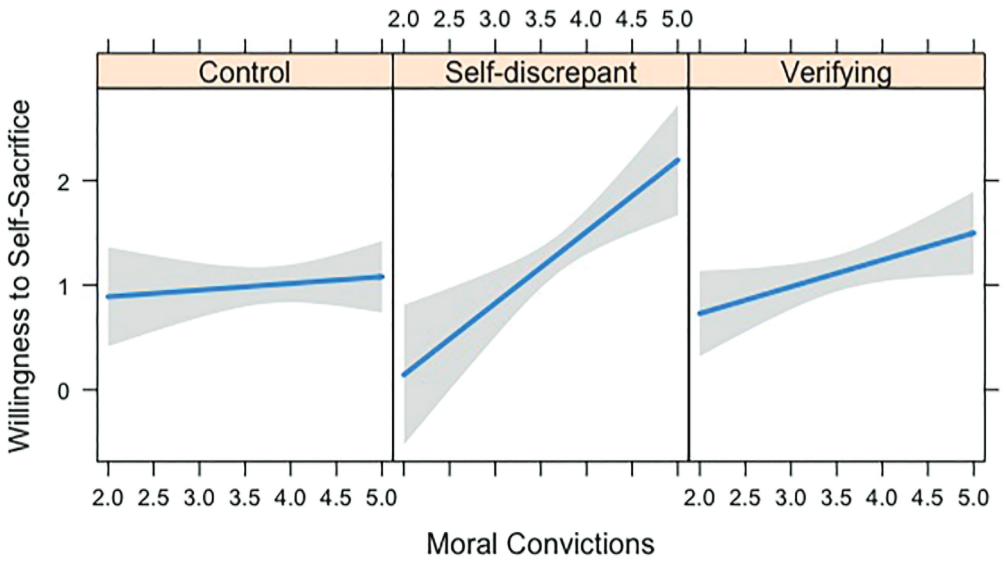

FIGURE 2 | Study 6 interaction between moral convictions and experimental manipulation in predicting willingness to self-sacrifice.

$t(191) = 2.10$, $p = 0.037$] or the control condition [$B = 0.06$, $t(191) = 0.51$, $p = 0.611$].

In contrast, sacred values were not a significantly stronger predictor of willingness to self-sacrifice for the cause in the self-disconfirming condition compared to the control condition ($p = 0.999$) or in the verifying condition compared to the control condition ($p = 0.498$).

Finally, the significant interactions discussed above qualified a marginal main effect of the experimental manipulation on sacrifice for the cause [$F(2,194) = 2.61$, $p = 0.076$, $\eta^2 = 0.03$]. This marginal main effect of $\eta^2 = 0.03$ could be considered small ($\eta^2 = 0.01$) to medium ($\eta^2 = 0.06$) based on conventional interpretations of eta squared effect sizes (Cohen, 1988).

GENERAL DISCUSSION

If it is clear that true believers are movers and shakers who shape the future of the world, it is less clear what drives them to behave as they do. We attempted to address this gap in the literature by determining whether three variables – sacred values, moral convictions, and identity

fusion – might contribute to the extreme behaviors of true believers. The results of six studies supported some, but not all, of our expectations. As anticipated, our findings consistently showed that although measures of the three constructs were correlated, they loaded onto separate factors. This suggests that the three predictors are related but distinct. Further support for this conclusion emerged when we entered the three predictors into simultaneous multiple regressions in which the outcome was endorsement of fighting and dying for a cause. The results of these regressions indicated that when we controlled for the effects of the other variables, identity fusion emerged as the strongest predictor.

Why was identity fusion a stronger predictor of self-sacrifice than either sacred values or moral convictions? We originally hypothesized that the predictive power of identity fusion stems from its sensitivity to the degree to which the personal self is aligned with the target of fusion. Contrary to this hypothesis, affirming the personal self in Studies 2, 3, and 5 did not strengthen the relationship between fusion and endorsement of extreme behavior for the cause.

Nevertheless, in Study 6, providing participants with self-disconfirming feedback interacted with identity fusion such that highly fused participants were particularly inclined to endorse extreme behavior and weakly fused participants were particularly disinclined to endorse extreme behavior. Perhaps disconfirming the self is a particularly effective way of activating the personal self. Alternatively, or in addition, having several experts disconfirm one's self-views may represent a potent threat that compels actions designed to neutralize perceived threats.

Another approach to understanding the power of fusion to predict willingness to self-sacrifice for a cause is to consider why its rivals were relatively weak predictors. Consider sacred values. Whereas indices of identity fusion are framed in terms of positive sentiments (e.g., "I have a deep emotional bond with my position on gun control," "Gun control is me"), indices of sacred values are framed in terms of negative sentiments (e.g., "My position on gun control is something that I should not sacrifice, no matter what the benefits (money or something else)," "My position on gun control is non-negotiable"). The negative framing of the sacred values items may be less motivating than the positive framing of the fusion items. A related possibility is that measures of sacred values focus on moral prohibitions against "selling out" (i.e., abdicating one's values for material gain). Given that people are terrible at estimating their ability to resist social pressures (e.g., Milgram, 1963), answers to questions about selling out may be inherently unreliable. In any event, the value of positive framing might explain the success of measures of sacred values in predicting costly self-sacrifices on the battlefield in Iraq, as in that context sacred values are framed as a component of the fighters' battle cry (Gómez et al., 2017). An alternative explanation for the anemic performance of sacred values in our studies is that sacred values are particularly influential in the context of intergroup conflicts (e.g., Sheikh et al., 2012), and such conflicts were not emphasized in our studies.

Like sacred values, moral convictions were a weaker predictor of endorsing self-sacrifice for a cause than identity fusion. Even so, moral convictions were a stronger predictor of self-sacrifice than sacred values. One reason for this is suggested by the results of Study 6. In that study, self-disconfirming feedback strengthened the relation between endorsement of self-sacrifice and both moral convictions and fusion (but not sacred values). Future research could seek to identify the mechanisms underlying these findings.

LIMITATIONS, IMPLICATIONS, AND RELATED FORMULATIONS

The results of our studies indicate that all three of the constructs we focused on here (sacred values, moral convictions, and identity fusion) were correlated with endorsement of fighting and dying for a cause. This suggests that measures of all three constructs could be used to identify potential true believers. That said, our simultaneous multiple regressions indicated that identity fusion was the most powerful predictor of endorsement of extreme behavior in our studies. Hence, it may be that researchers interested in extreme behavior will get more "bang for their buck" if they measure fusion rather than sacred values or moral convictions.

Of course, it may be that measures of sacred values or moral convictions would have been more effective if we had examined alignment with groups, other causes or if we had focused on different outcome measures. Moreover, even if our measure of identity fusion were generally superior to the measures of the rival constructs, this could say more about the measures themselves rather than the constructs they were designed to measure. For example, it could be that our measure of identity fusion is psychometrically superior to the particular measures of sacred values and moral convictions but that more reliable or valid measures of these rival variables would out-predict the identity fusion measure. Future research should explore these possibilities.

The six online surveys reported here provided consistent evidence that identity fusion, sacred values, and moral convictions all positively predicted stated willingness to fight and die for a cause. Whether and how support for such extreme actions would translate into actual behavior is beyond the scope of these studies. That said, field research conducted during the 2011 Libyan civil war indicated that fusion with one's battalion was associated with whether militiamen volunteered to fight on the front lines rather than provide logistical support (Whitehouse et al., 2014). Other recent research conducted in prisons indicated that fusion with religion is associated with costly sacrifices for religion among inmates incarcerated because of Islamist terrorism (Gómez et al., 2021). The results of these studies thus provide some evidence that identity fusion is related to behavior in naturally occurring settings.

Of relevance to the true believer theme with which we opened this article, our findings suggest that people who are strongly fused with a cause may sometimes constitute

"radicals-in-waiting," especially if their cherished cause or their personal identity is threatened. Of course, whether highly fused persons actually radicalize depends on the target of their fusion; individuals who are strongly fused with radical jihadists are much more likely to fight and die for their group than those who are strongly fused with a rock band.

If being fused with certain groups or ideologies makes individuals potential radicals, then it makes sense to build comprehensive models of the variables that may prompt highly fused people to translate their feelings of fusion into violent action. The devoted actor model (Atran and Ginges, 2015), which combines identity fusion with sacred values, represents one such model (although our findings offered little evidence for the unique predictive utility of sacred values). Another candidate is the 3N model (e.g., Webber and Kruglanski, 2017; Bélanger et al., 2018, 2019), which examines the influence of needs, narratives, and social networks on radicalization. Due to its expansiveness, the 3N model provides a relatively comprehensive model of the variables that may motivate true believers to translate their convictions into extreme behavior.

Our evidence in Study 6 that a threat to the personal self amplified the effect of identity fusion is consistent with the 3N model's emphasis on the importance of the desire for personal significance. It is also reminiscent of Hoffer's (1951) comments on the role of perceived threat among true believers: "A rising mass movement attracts and holds a following not by its doctrine and promises but by the refuge it offers from the anxieties, barrenness and meaninglessness of an individual existence …" (Hoffer, 1951). Through their identity fusion with a cause, true believers may feel the self and the target of fusion to be functionally equivalent, which makes defending the target equivalent to defending the self (Swann et al., 2009, 2012).

Overall, we uncovered consistent evidence that identity fusion was the strongest predictor of willingness to fight and die regardless of participants' position regarding abortion or gun rights. That said, the fact that our sample in Study 6 was predominantly composed of pro-choice, participants (178 pro-choice, 19 pro-life) raises the possibility that the results of this particular study were primarily driven by pro-choice participants.

Although our discussion thus far has focused on the dangers that true believers pose to the world at large, it is important to acknowledge that the degree of threat posed by true believers depends largely on the nature of the cause to which they are fused. In fact, identity fusion is socially beneficial in some instances. For example, students who were fused to their universities were more inclined to persist in college (Talaifar et al., 2021).

These caveats notwithstanding, when true believers become fused with terrorists or violent insurgents, it is important to develop effective intervention strategies (e.g., Kruglanski et al., 2014). Our findings suggest that the road to deradicalization will be a steep and thorny one for those who become fused with a cause because, for such individuals, deradicalization will mean relinquishing an aspect of their personal self. One strategy for managing the zealotry of true believers is to re-direct their passions from destruction (e.g., terrorism) to construction (e.g., building community). Alternatively, it may be possible to diminish identity fusion by degrading relational ties to other advocates of the group or cause (Gómez et al., 2019). In the latter case, focusing on disengagement from the group could be more effective than de-radicalization, as the latter requires surmounting the high bar of de-sacralization or de-fusion with a cause. Although the most effective way of dealing with true believers gone bad is not yet apparent, it is clear that achieving this goal is vitally important. Rather than attempting to bring true believers to disbelieve, it may be more realistic to bring them to believe in something else.

DATA AVAILABILITY STATEMENT

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://osf.io/p58ks/?view_only=1e250b9e2ff84465a0d9cffee89260ae.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The Institutional Review Board (IRB) at the University of Texas at Austin. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

FM, MB and WS were principally responsible for the design of the studies and FM and WS wrote the manuscript. FM collected the data for studies 1–5, wrote the R code and conducted analyses for all studies. AG and AV were principally responsible for the design and data collection of Study 6 and contributed to the analysis and editing of the manuscript. All authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.779120/full#supplementary-material

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Poles Apart? The Extent of Similarity Between Online Extremist and Non-extremist Message Content

Sheryl Prentice and Paul J. Taylor*

Department of Psychology, Lancaster University, Lancaster, United Kingdom

Within studies of extremism, extremist and non-extremist messages are generally treated as two sets of competing constructed narratives. However, some research has argued that these message forms are not dichotomous and that non-extremist narratives demonstrate overlap with extremist master narratives. The aim of this paper is to test this hypothesis empirically by comparing 250 extremist, 250 mainstream and 250 counter-extremist messages. The paper finds considerable overlap between extremist and non-extremist material. However, an analysis of underlying content suggests that this overlap may not be so much due to the extensive adoption of an extremist master narrative by non-extremist authors, but rather a question of resistance and positioning, specifically, who are authors resisting and why? The findings have implications for counter-extremism policy.

Keywords: extremism, counter-extremism, mainstream, (dis)similarity, positioning, resistance

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****Correspondence:***
Sheryl Prentice
s.r.prentice1@lancaster.ac.uk

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INTRODUCTION

Master narratives are "dominant cultural storylines which form the context of (people's) lives" and are the means by which we understand our own stories and those of others, "identifying what is assumed to be a normative experience" (Andrews, 2004, p. 1). With reference to the work of Halverson et al. (2011), Al Raffie (2012) describes how a type of extremist master narrative (namely, Salafi Jihadist master narratives) have gradually attempted to reshape the normative experience of Muslims by basing themselves on well entrenched Muslim cultural master narratives, which are built on religious texts and Muslim history. Salafi Jihadist master narratives are said to be characterized by the creation of "both real and perceived hostilities between Muslims and non-Muslims; cementing a perception of a "War on Islam," which ultimately seeks to divide Muslims and non-Muslims via a religious filter (Al Raffie, 2012, p. 19).

Drawing on the work of Huband (2010), Al Raffie (2012, p. 15) explains that this goal is achieved via reference to a politically and sociologically dominating situation, linking religious sources to the sociological situation, and constructing identity as the result of these two factors. According to Al Raffie (2012, p. 25), this attempt to reshape Muslims' normative experience has been adopted by the mainstream and receives support from a range of organizations, states and actors, going on to argue that "the only difference between them and Salafi Jihadist narratives is that they are more strategic in communicating their desired end effects and seemingly reject violent tactics." This paper seeks to empirically test the hypothesis that Salafi Jihadist narratives, and those of other groups and individuals advocating a similar message, are present in mainstream narratives, and to what extent, by comparing sets of extremist and non-extremist messages.

The paper begins by reviewing literature on the similarities and differences between extremist and non-extremist messages, before moving to a description of the collection and comparison of four inter-related message forms: Salafi Jihadist (and related) messages, mainstream news articles from Arab based media outlets, religious authored counter-extremist messages and British Official authored counter-extremist messages (as a control). The extent and nature of conceptual overlaps between the forms of material is discussed before examining how authors position themselves relative to shared concepts. The concluding discussion of the paper explores how work on narratives of resistance can best explain the similarities observed between extremist and non-extremist message forms.

This work is a combined result of research (see Prentice, 2013) undertaken as part of the *Time, Response and Audience Construed Evaluation of (Counter-)Extremist Messages (TRACE)* project (funded by HMG) and the *Building Resilience Against Violent Extremism and Polarisation (BRaVE)* project (funded by the European Commission's Horizon 2020 research and innovation programme, Grant no. 822189).

BACKGROUND

Typically, research on extremist material, or research comparing extremist and non-extremist material, seeks to understand what is unique about extremist forms of communication. Research treating extremist and non-extremist language as opposing entities is grounded in the theoretical assumption that extremists possess unusual ways of thinking (Pearlstein, 1991; Johnson and Feldmann, 1992; Merari, 1999; Merari et al., 2009), or a differing psycho-logic (see Post, 1990). If one holds to the assertion that language is one of the key ways in which the thoughts and beliefs of individuals are reflected (Billig, 1997; Pennebaker, 2002; van Dijk, 2006), it follows that extremist language would be markedly different from non-extremist language, since it presumably reflects an alternative way of thinking about the world.

Applying this to the language used by proscribed terrorist groups in the United Kingdom (specifically, those advocating a violent interpretation of Jihad), studies have found differences between the communications of such groups and those of control groups. Prentice et al. (2012a), for example, identified content differences between a corpus of religious extremist statements and a corpus of general English usage. They found that extremist authors center their rhetoric on the themes of morality, social proof, inspiration and appeals to religion, and that they tend to refer to the world via contrasting concepts, suggesting a polarized way of thinking when compared to a general population usage.

Similarly, Payne (2009) has identified differences between the narratives of Al-Qaeda authors and opposing Western government authors. He found that Al-Qaeda's narrative is characterized by the concepts of Islamic utopia, an "us-versus-them" dichotomy, jihad as a just response, legitimizing terrorism and glorifying martyrdom. By contrast, government narratives were characterized by the concepts of undermining Al-Qaeda and building resilience and community cohesion through a sense of "Britishness." Payne's (2009) findings demonstrate a second, more overt reason why the content of extremist and non-extremist messages should differ: The authors of these messages may deliberately seek to distance their rhetoric from one another for strategic purposes.

Some researchers have argued that in order to counter the risk posed by extremist rhetoric, non-extremist message content should directly oppose the arguments made in extremist messages by delegitimizing political violence and the actors who pursue it, thereby creating their own form of counter-persuasion (Halafoff and Wright-Neville, 2009; Chowdhury and Krebs, 2010; Gregg, 2010). Likewise, Awan (2007) has found that extremist sources present a differing perspective to mainstream non-extremist sources in an effort to challenge the latter's hegemony. Therefore, whether unintentionally reflecting differing thought processes, or intentionally distancing themselves from one another's arguments, extremist and non-extremist message content is, under this popular conceptualization, expected to differ.

There are, however, reasons to believe that the narratives of extremist and non-extremist messages are not as directly opposed as the aforementioned literature implies. Mainstream media can be observed to take on Gutmann's (2007) qualities of extremist literature, in that press articles have been found to demean perceived out-groups and narrow understanding of particular individuals (such as asylum-seekers or Muslims) or social issues (including immigration and practicing Islam) (see Richardson, 2004; Baker, 2010; for examples). Press reports have further been found to legitimize and remediate extremist actors and their arguments (Al-Marashi, 2007; Azam, 2008; Hoskins and O'Loughlin, 2009).

Mainstream political language has also been observed to adopt a number of similar rhetorical strategies to extremist authors. Schafer (2002); Leudar et al. (2004), and Jones and Smith (2010) for example, have all identified unifying terms of reference (i.e., "we," "us," etc.) to create an in-group in the language of both Western secular and extremist authors as they vie to achieve success in winning over public opinion. These in-group and out-group discourse features have been further noted in the language of Western politicians (Lazar and Lazar, 2004; Becker, 2007; Richardson and Wodak, 2009; Verkuyten, 2013). Non-extremist political language holds additional aspects in common with extremist language in its moral and social justificatory arguments for warfare, which have been observed in both political (Lazar and Lazar, 2007) and extremist statements (Duffy, 2003).

There are a few reasons why extremist and non-extremist rhetoric may overlap. Numerous studies have demonstrated that sharing various identity-related factors, such as race, ethnicity and religion can result in individuals converging their language features (Labov, 1972; Cheshire, 1997; Milroy and Milroy, 1997; Joseph, 2004). Such sociolinguistic research links with social identity theory's assertion that people identify themselves as belonging to particular groups, using group norms to enforce membership of groups, and boundaries with other groups (Tajfel, 1978, 1982; Tajfel and Turner, 1979). Language is one of the ways in which these social identities are achieved and maintained (Billig, 1997).

Indeed, Prentice et al. (2012b) have found ideological content links between religious extremist and religious counter-extremist messages, such as descriptions of the legitimacy of violence in circumstances defined by their mutual faith (see also Khān, 2002; Mascini, 2006). Bilali (2014) has also observed an association between national identification and conflict construal across the narratives of Turkish and Kurdish ethnic groups. A linked explanation for the rhetorical overlaps observed between extremist and non-extremist messages emerges from Zaal et al. (2011), who have found that individuals "with a strong moral conviction about the fair treatment of their group are willing to support both hostile and benevolent forms of collective action."

Such theories may explain the adoption of Salafi Jihadist (and related) master narratives by mainstream voices observed by Al Raffie (2012). The ultimate aim of this paper will be to quantify the extent of any relationship between extremist and non-extremist narratives and to qualify whether any observed relationship is due to the adoption of extremist master narratives by mainstream authors on the grounds of religious in-group identification.

MATERIALS AND METHODS

This section details the collection of four corpora of religious extremist, mainstream, counter-extremist and control messages, and the procedure used in their analysis.

Corpus Collection

Analyses were conducted on four corpora: A 425,516 word extremist message corpus, containing 250 texts written by members of religious extremist groups or unaffiliated extremist individuals (M = 1814.0 words, SD = 2327.1); a 107,018 word mainstream message corpus containing 250 news articles drawn from four popular middle-eastern news outlets (M = 446.0; SD = 254.1), a 119,678 word religious counter message corpus, containing 200 anti-violent messages from Muslim clerics and discussion boards (M = 598.4, SD = 731.6), and a 89,254 word British Official authored counter message corpus, containing 50 statements authored by British politicians (M = 1785.1, SD = 1763.7).

The religious and British Official counter messages were originally collected (by MacInnes, 2014) as one corpus of 250 messages. However, as this study aims to determine whether there is narrative overlap between extremist and non-extremist authors who identify with the same religion, the messages are considered separately here. British Official messages are included as a control group.

All data sets feature English language messages because of their use by extremist groups to appeal to the widest possible audience (Memri Organization, 2007). All messages are drawn from online sources, due to an increasing tendency for this community to utilize online sources for information gathering and distribution (Brouwer, 2004; Hirji, 2006). Collection of messages for the extremist data set began with targeting the websites of known extremist organizations and individuals in, for example, the HM Government (2012) list of proscribed terrorist groups and organizations.

This was followed by an investigation of links from such websites to other sites containing extremist material. Specifically, of the 250 messages, 160 were drawn from the websites of 15 different extremist groups and organizations (such as Al-Qaeda), and the remaining 90 from the websites of 67 unaffiliated individuals (such as Al-Fallujah forums). To be included, messages had to explicitly advocate the use of violence (this is due to our interpretation of extremist messaging, i.e., the incitement of violence against civilians), thus avoiding the inclusion of messages in which authors only sought to advocate a strict version of their beliefs, where the boundaries between extreme and non-extreme material become increasingly blurred. The messages are dated between 1996 and 2009.

The 200 religious counter messages and 50 British Official authored counter messages originate from MacInnes (2014) and are largely from counter-extremist websites affiliated with counter-extremist individuals within Muslim communities. The messages combine anti-violent responses from religious scholars to guest questions on the use of violence (94 texts) and anti-violent open discussion forum posts on topics of violence (106 texts). The 50 British Official counter messages consist of British officials' statements, collected from news sites or government websites.

In MacInnes' (2014) study, authors had to be recognizable public figures whose statements would be regarded as espousing the position of the United Kingdom government. Their inclusion provides an alternative perspective on the issue of counter-extremism, a perspective that is also important to British Muslim identity (Pew Research Centre, 2006). Further, Al Raffie (2012) states that the position in such messages lends legitimacy to an extremist master narrative by way of apology and confirmation of wrong-doing. Therefore, their inclusion offers a means of exploring whether this is the case. Further, British Official Counter messages are included because the paper discusses the hypothesis that extremist and non-extremist, moderate authors who identify with the same religion in this case, will demonstrate similar language use. That being the case, one should not then observe extensive overlap with individuals who do not identify with the same religion (i.e., the British Official authors included). The longer length of the British official messages means that increasing their number would over-represent this secondary perspective in the data.

Finally, a mainstream corpus was created to contribute a perspective that is neither directly pro- or anti- violence. News articles, specifically, current affairs articles, were selected for this purpose, as they have been identified as a common and credible source of information in studies of Muslims' media consumption more generally (Next Page Foundation, 2007). Data was sourced from Al Jazeera (94 texts), Press TV (63 texts), Al Arabiya (63 texts), and Al Alam (30 texts). These sources were selected as they have been observed to be credible to one or more Muslim communities within the United Kingdom (RICU, 2010). These data were downloaded from the news and current affairs sections of the respective sites. Selection of texts from the four sites was weighted according to site

reputation, i.e., the number of other sites linking into the site, making it more likely to be viewed by a wider audience (reputation rankings were drawn from www.alexa.com/siteinfo). Texts were selected at random for inclusion in the corpus in order not to bias text selection. More specifically, the filenames associated with lists of downloaded articles from the news/current affairs section of each website were extracted and an automated randomization algorithm used to select the weighted number of articles from each source. Texts had to be at least 100 words in length. Where a randomly selected article failed to meet this criterion, the same algorithm was used to select an alternative.

Given the subject matter, one might question why counter-messages have been included in an analysis of extremist and mainstream narrative overlap. The reasons for including counter-extreme messages in the analyses are twofold. First, counter-extreme messages are interpreted here as another form of "non-extremist" message, or moderate/mainstream voice. Their inclusion therefore allows for the comparison of extremist narratives with different types of "non-extremist" narrative, both those that are directly non-extreme in nature (counter-extremist) and those that are indirectly non-extreme (mainstream news reporting). Second, if one were to only consider how mainstream media overlap with extremist material, one would ignore its potential to overlap with the antithesis to this content (i.e., counter-extreme material).

Content Coding

The texts were examined using the semantic analysis software Wmatrix. Wmatrix works by labeling every word or multi-word-unit (MWU) in a text file for its part-of-speech and semantic category. The part-of-speech tagger (named CLAWS) assigns major word class categories (e.g., noun, verb, adjective, and adverb) to each linguistic unit (defined as single words and multi-word-expressions) in a text. The semantic tagger USAS uses a manually created dictionary (Piao et al., 2005) and several word sense disambiguation techniques (Rayson et al., 2004a) to assign the same linguistic units to one or more of its 232 semantic categories. These categories (a full list of which can be found at ucrel.lancs.ac.uk/usas/) are classified into 21 broad domains, or groups of semantically related terms (see ucrel.lancs.ac.uk/usas/ for all domains).

To give an example, in the sentence "The Prime Minister visited Afghanistan," "The" would be assigned to Grammatical words, "Prime Minister" to Government and People, "visited" to Social actions, states and processes and Moving, coming and going, and "Afghanistan" to Geographical names. The category and domain-based classifications allow the user to conduct both macro (domain) level and micro (category) level analyses of the data using a variety of statistical methods.

Wmatrix's automated approach was adopted over a manual approach to ensure continuity in the application of codes across the three corpora. Although other automated approaches have proved useful in previous studies involving extremist material (Pennebaker and Chung, 2008; Bermingham et al., 2009), the distinct advantage offered by the Wmatrix package is the granularity of its coding systems, allowing both macro and micro level analyses of the data (see, for example, Rayson, 2008).

Keyness Comparison Procedure

Once processed by Wmatrix, it was possible to retrieve semantic category lists for each of the four corpora. The lists contained the semantic categories present in each corpus together with their frequency of occurrence. These lists were then submitted to a form of analysis known as keyness comparison, which in this case involves two steps. The first step of keyness comparisons is to identify categories that are over or underused beyond what might be expected by chance. To determine this, the log-likelihood value of each semantic category's frequency of occurrence across the corpora was calculated.

By calculating the log-likelihood value for each category across the four corpora, it was possible to establish the number of categories being significantly overused or underused in a particular corpus or corpora, relative to the others. These significant categories, therefore, highlight the aspects of content on which the corpora significantly differ from one another. Any log-likelihood value of 15.14 ($p < 0.0001$) is deemed to be statistically significant in the present study. As log-likelihood measures can generally skew one's data in the direction of differences, alongside this measure, approximate Bayes Factors (BIC) are used to calculate effect size, with BIC values > 10 indicating very strong evidence against the null hypothesis of no difference between the corpora on a given category and BIC values < -10 indicating very strong evidence in favor of the null hypothesis (see Wilson, 2013).

Therefore, in the present study, any category with a log-likelihood value of ≥ 15.14 and a BIC value of ≥ 10 was counted as indicating a difference between corpus sets, while any category with a BIC value of ≤ -10 was counted as indicating no difference between the comparison corpora. As low corpus frequencies (i.e., ≤ 5) have been found to affect the usefulness of the log-likelihood statistic (Rayson et al., 2004b), any categories where a corpus (or corpora) returned a frequency ≤ 5 were removed from the analysis.

While this analysis reveals the areas of difference and similarity between all the corpora, it does not determine the corpus responsible for the differences, which would in turn highlight aspects of content held in common by the remaining corpora. To achieve this, the second step is to calculate the under and over use of each category in each corpus. In this case, if the observed frequency of a category in a particular corpus was less than its expected frequency, this was classed as underuse of the category. By contrast, observed frequencies greater than expected frequencies were recorded as being overused. For further details on this method, see Prentice et al. (2021).

Overused categories for each corpus, corpus pair, or corpus trio were taken to be characteristic of the corpus/corpora in question and summed to give a profile for each corpus comparison. The percentage of categories above the designated threshold assigned to each individual corpus or corpus grouping were then compared to establish which corpus/corpora accounted for the greatest number of shared conceptual categories. Shared categories for these corpora were then listed

and examined to gain an overall understanding of the nature of conceptual overlap between particular message types.

Semantic Concordance Analysis

While the adaption of the keyness comparison method outlined above identifies the extent and nature of shared concepts between the corpora, which can offer initial indications as to whether message types share narratives with one another, one can only confirm this by exploring the context in which concepts occur. Specifically, our analysis looks at how authors of messages position themselves in relation to shared concepts. Who do the authors identify with, who is their audience, and who is the out-group?

After running the corpora through part-of-speech and semantic tagging, various frequency lists are made available to the user via Wmatrix's interface. This includes a list of words, along with their semantic category and frequency of occurrence in a corpus. These lists were used to source the most frequently occurring word assigned to each shared category. Once located, Wmatrix's concordance function was used to search for the word and provide a list of examples of the word in its immediate linguistic context. Examples were selected at random and can be found in **Tables 1–4**.

Examples were then subjected to a positioning analysis. We used Bamberg's (1997, p. 341) perspective on positioning, which views this as "the speaker's active engagement in the construction

TABLE 1 | Examples of shared conceptual categories between Salafi Jihadist/Related messages (Extremist), religious authored counter-extremist messages (Muslim_Counter), Arab Mainstream Media messages (Mainstream), and British Official counter-extremist messages (BrOfficial_Counter).

Category	Corpus	Example
B4	Extremist	"Verily, the sword does not **wipe** off an-Nifaaq (hypocrisy)"
	Muslim_Counter	"This includes struggling against evil inclinations and **purifying** one's soul"
	Mainstream	"'These events can no longer be **swept** under the carpet. If followed by strong regional and international action, this report could make a major contribution to ending the impunity that lies behind the cycle of atrocities in the Great Lakes region of Africa,' he added."
	BrOfficial_Counter	"But the narrative of grievances has sufficient plausibility that it cannot just be **brushed** aside"
L3	Extremist	"Accordingly, although Muslims have divided themselves into sects, nonetheless, a way out is that we should be united like a huge **tree** which has numerous **branches**, they are not disconnected"
	Muslim_Counter	"Actually, after reading the news, one realizes why the 'civilized world leaders' might never succeed in stopping terrorism! For one thing, they do not want to hear about the **root** causes of terrorism"
	Mainstream	"This is the will of the regional nations that after 60 odd years, the **root** of this corrupt microbe and the main reason for insecurity in the region be pulled out"
	BrOfficial_Counter	"I thought then and I think now that defeating this threat—whose **roots** are deep and have been a long time growing—was going to take a generation"
N4	Extremist	"**Then** there was the coordination after Afghanistan, to eliminate the former Iraqi regime"
	Muslim_Counter	"Both sides of the argument should be heard, the situation should be analyzed, and the reason and the intention of the person should be taken into account, and **then** the person can be judged accordingly"
	Mainstream	"Netanyahu, who has said he would push hard to clinch a deal, also wants the U.S. letter to spell out that the proposed moratorium would be the **last**"
	BrOfficial_Counter	"**First**, in this country. The unavoidable priority is to identify the individuals who intend to commit violent acts and prevent them doing damage"
H4	Extremist	"People **live** in perpetual fear and paralyzing terror, awaiting death at any moment from a missile or shell which will destroy their **homes**, kill their sisters and bury their babies alive"
	Muslim_Counter	"Some countries where Muslims **live** have been attacked and **occupied** in the last few years, so I think it's not wrong for the population to resist the invasion, but this has nothing to do with putting bombs in trains in Madrid and London"
	Mainstream	"Palestinians said that Israeli **settlers** in the **occupied** West Bank burned about 200 of their olive trees on Sunday and also torched surrounding grazing land"
	BrOfficial_Counter	"But we have to work at finding what we have in common and making this a **home** for all of us"
E1	Extremist	"I was in contact with him and I asked him about his **morale**. He told me he was very happy"
	Muslim_Counter	"For centuries, their tolerance and **compassion** have characterized Muslims"
	Mainstream	"The loss of civilian lives at the hands of foreign forces has dramatically increased anti-American **sentiments** in Afghanistan"
	BrOfficial_Counter	"Over the coming months, in the courts, in parliament, in debate and engagement with all parts of our communities, we will work to turn these **sentiments** into reality"
X7	Extremist	"We don't **want** oppression. We **want** to regain the freedom of our Muslim nation"
	Muslim_Counter	"We are human beings too. We **want** a peaceful life. Afghans want to be educated and have a prosperous life"
	Mainstream	"'We no longer **want** military coups in this country. We **want** a civilian and a more democratic constitution,' said Serkan Misirlioglu"
	BrOfficial_Counter	"We **want** to respect all of our communities, including the Muslim community. But we also **want** to deal with the extremists in our ranks, because that is a way of protecting our way of life"

Bold font corresponds to a word from a shared category.

TABLE 2 | Examples of shared conceptual categories between Salafi Jihadist/Related messages (Extremist) and religious authored counter-extremist messages (Muslim_Counter).

Category	Corpus	Example
S9	Extremist	"All this is happening at a time in which nations are attacking **Muslims** like people fighting over a plate of food"
	Muslim_Counter	"This way people in general will come to love **Islam** and its message and will convert to this wonderful religion after having learnt its great principles and values"
A5	Extremist	"This is a **great** advantage for Muslims since during wars and fighting, their ranks will disunite and their assemblies will disintegrate"
	Muslim_Counter	"If you're praying they stop killing innocent people, that's **good**"
S7	Extremist	"For to try and defend oneself against criticism and blame in the New World **Order** today, from its Muslims and non-Muslims is indeed a waste of time"
	Muslim_Counter	"**Let** us put our dislike of Bush and his coterie of warmongering, torture-condoning neo-cons aside, and focus on what is really important-the future of our Iraqi brothers and sisters, who deserve nothing less than to live as free citizens, free from the evils of autocracy and the scourge of terrorism"
S2	Extremist	"If some **people** have in the past argued about the fact of the occupation, all the **people** of the Peninsula have now acknowledged it"
	Muslim_Counter	"It is their only battle, as they have no weapons except their own bodies and their own lives to resist the invasion of those who come with F-16s, tanks, and machine guns to kill their very own **children**"
E2	Extremist	"They **like** to spread mischief and corruption on earth and strive hard to accomplish this"
	Muslim_Counter	"I would **like** to recall here that the intolerant Catholics in Spain went very far against the teachings of Jesus himself, the prince of peace"
P1	Extremist	"They (Muslim **scholars**) say we have to obey our government, abide by its laws, serve in its military and security forces, and pay taxes"
	Muslim_Counter	"In fact, after September 11 and since, Muslim leaders and **scholars** have been voicing their condemnation of terrorism loud and clear"
S8	Extremist	"Raise your arms and **fight** to escape from this humiliation and shame!"
	Muslim_Counter	"I'd like to make it close to your mind why Muslims are in need of **fight** or combat"
S1	Extremist	"We know the truth about the leaderships of the first tier and their subjugation to our **enemies**"
	Muslim_Counter	"The second case why the 'defensive' acknowledged physical Jihad is when it brings about safety to the Muslim state and security its borders, especially when the state is being threatened by **enemies** who are plotting against it"

Bold font corresponds to a word from a shared category.

process of narratives." This construction process consists of three levels (Bamberg, 1997, p. 337):

Level 1: This level entails looking at linguistic devices which indicate how characters are being positioned relative to one another within a series of reported events. Specifically, this includes an examination of agency, i.e., who is marked as being in control of the action? Who is acted on by external forces or rewarded by their personal qualities?

Level 2: This level looks at how the narrator positions themselves relative to their audience by way of a linguistic analysis of attempts to instruct the audience "in the face of adversary conditions," or otherwise make excuses or attribute blame for their actions to others.

Level 3: This level looks at the narrator's construction of their own identity (identity claims), specifically, how they answer (indirectly) the question of who they are. This element of the analysis moves beyond the language used to what the narrator holds to be true beyond the local situation.

Each of these levels were employed on the examples listed in **Tables 1–4**. Within tables, similarities in positioning were taken to indicate shared narratives between the two message types, while differences in positioning were taken to indicate individual narratives, or narratives shared with another message type. The latter was ascertained by looking at similarities in positioning observed across **Tables 1–4**.

RESULTS

This section provides a summary of the results of the keyness comparison and semantic concordance analyses. **Table 5** presents a numerical breakdown of the conceptual categories held or shared between different message types.

Table 6 presents a breakdown of the categories shared by the most frequently occurring message groupings: all four message types, British Official counter messages and Arab mainstream media messages, extremist messages and religious authored counter messages, and British official counter messages and religious authored counter messages.

Tables 1–4 present examples of shared categories from the corpus groupings featured in **Table 6**. **Table 1** provides concordance examples of the categories shared between all four message types.

Table 2 provides concordance examples of the categories shared between the Salafi Jihadist and related messages and the religious authored counter messages.

Table 3 provides concordance examples of the categories shared between the religious authored counter messages and British Official authored counter messages.

Table 4 provides concordance examples of the categories shared between the British Official authored counter messages and the Arab mainstream media messages.

TABLE 3 | Examples of shared conceptual categories between religious authored counter-extremist messages (Muslim_Counter) and British Official authored counter-extremist messages (BrOfficial_Counter).

Category	Corpus	Example
S6	Muslim_Counter	"Even if Spain and the UK were among the attackers, they **should** have fought against the soldiers who are in their countries, not random killing civilians, including children, who have no other fault than sitting in a train"
	BrOfficial_Counter	"Understand the causes of terror. Yes, we **should** try, but let there be no moral ambiguity about this: nothing could ever justify the events of 11 September, and it is to turn justice on its head to pretend it could"
X4	Muslim_Counter	"Somehow Al Qaeda has convinced Muslims that the only **way** to fight the West is through new means"
	BrOfficial_Counter	"You saw with Afghanistan or the 11th September attack, there's no **way** Britain could have stood apart from that. I mean we could have taken a back seat, but we were still involved"
A13	Muslim_Counter	"The Prophet Muhammad said that anyone who killed **even** a bird unjustly would meet Allah on Judgment day"
	BrOfficial_Counter	"The **more** we reach out across the world of faith, the **more** common space the Abrahamic and non-Abrahamic faiths can inhabit, then the extremists and reactionaries within all faiths can be challenged"
A4	Muslim_Counter	"In **case** there is a violation to the security pledge by any non-Muslim citizen, then he is solely responsible for his personal violation, and no one except the Muslim 'Extremist' is allowed to question him for such violation"
	BrOfficial_Counter	"And here is why Iraq is important in this, because in the end their **case**, which is based on dividing people, the Arab world and the western world, the Muslim world and the Christian world and other religions, their **case** is that we are in Iraq to suppress Muslims, steal their oil, to spoil the country. Now we know, you know, that all those things are lies"
A7	Muslim_Counter	"Only God **can** guide individuals to Islam, not some disgusting fool named bin Laden"
	BrOfficial_Counter	"If we do take military action, we have to do everything we possibly **can** to minimise the civilian casualties"
A1	Muslim_Counter	"For this reason, Muslims **do** not encourage everybody to go about interpreting and explicating the Qur'an"
	BrOfficial_Counter	"The sceptics said it was pointless, we'd **make** matters worse, we'd **make** Milosevic stronger and look what happened, we won, the refugees went home, the policies of ethnic cleansing were reversed"
N5	Muslim_Counter	"Still, always the proviso is that fighting should be the last option, when **all** other avenues are closed"
	BrOfficial_Counter	"If international terrorism is defeated, we are **all** safer"
A14	Muslim_Counter	"The **only** difference between you and them is; they follow the Quran and the Sunnah, fearing Allah and not basing their judgments on their own opinions, while the others make their own conclusions according to their own desires"
	BrOfficial_Counter	"It turns upside-down our concepts of how we should act and when, and it crosses the frontiers of many nations. So **just** as it redefines our notions of security, so it must refine our notions of diplomacy"

Bold font corresponds to a word from a shared category.

DISCUSSION

This section discusses the results of the keyness comparison and semantic concordance procedures presented in **Tables 1–6**.

Extent and Nature of Overlap of Conceptual Categories

Of the 104 categories included in the analysis, 40 categories (38.46% of 104 categories) received negative BIC values, with 27 categories (25.96%) returning a BIC ≤ -10 and all corpus frequencies > 5, indicating no discernible difference between the usage of these categories across the message types. The remaining 64 categories returned positive BIC values, of which 60 returned BIC values above 10 and 4 returned values between 1.69 and 8.84. **Table 5** presents a breakdown of the categories above the specified threshold, i.e., LL value ≥ 15.13 and a BIC value ≥ 10, or BIC value ≤ -10 and all corpus frequencies > 5.

The results presented in **Table 5** suggest that around a quarter of the conceptual categories are shared by all message forms. This is followed by British Official counter messages and Arab mainstream media messages, which interestingly demonstrate a greater degree of overlap than Religious authored counter messages and Arab mainstream media messages (10.58%, compared with 2.88%). The next highest number of shared categories are found between the extremist and Religious authored counter messages, and British Official and Religious authored counter messages, both of which share the same number of categories at 7.69% each. Therefore, Religious authored counter extremist messages and extremist messages are as close in conceptual terms as both forms of counter message are to one another. Importantly, extremist material does not stand out in these comparisons.

While the results provide an element of empirical support for Al Raffie's (2012) argument that mainstream narratives adopt the same master narrative as extremist messages, in that both Religious authored and Arab based mainstream media messages demonstrate some overlap with extremist material, this overlap is not as extensive as the overlap between all four message forms and no more extensive than the overlap between Religious authored counter messages and British Official counter messages, or British Official counter messages and Arab mainstream media messages (indeed, less so than the latter).

Given these observations, Religious authored counter messages could also be argued to be simultaneously borrowing from a Western master narrative, or vice versa, as indeed, could Arab mainstream media. The observation that different groups of messages overlap to differing degrees suggests a complex blend of narratives. Looking at the results presented in **Table 6**, one can begin to unpick the complexities between the groups of messages.

The categories shared by all four message forms are varied in nature and include concepts related to emotion

TABLE 4 | Examples of shared conceptual categories between British Official authored counter-extremist messages (BrOfficial_Counter) and Arab mainstream media messages (Mainstream).

Category	Corpus	Example
G1	BrOfficial_Counter	"The first priority of any **Government** is to ensure the security and safety of the nation and all members of the public"
	Mainstream	"The peace talks have also exacerbated tensions between Palestinian President Mahmoud Abbas' West Bank **government** and the rival Islamic militant Hamas that rule the Gaza Strip and opposes negotiations with Israel"
M7	BrOfficial_Counter	"In the decades to come there will be many **international** negotiations, debates, occasionally, if only in a diplomatic sense, confrontations"
	Mainstream	"Kidnapping for ransom is common and a lucrative business in the Horn of Africa country and Somali fighters say they will stand up to the government until all **foreign** forces in the capital leave the country"
I2	BrOfficial_Counter	"There is now no contact permitted with western **agencies**, even those delivering food"
	Mainstream	"'We observe the banks in the UAE, whether foreign or local banks, are applying more and more daily restrictions to the Iranian traders and businesses,' said Morteza Masoumzadeh, the vice president of the Iranian Business Council (IBC) in Dubai and managing director of Jumbo Line, a shipping **agency**"
I3	BrOfficial_Counter	"It is right that we now also **work** more closely with allies in the region through a new 'Friends of Yemen' group, we will help establish to pool effort, resource and expertise"
	Mainstream	"'The idea that courts should have no **role** whatsoever in determining the criteria by which the executive branch can kill its own citizens is unacceptable in a democracy,' the American Civil Liberties Union and Center for Constitutional Rights said. 'In matters of life and death, no executive should have a blank check,' they said"
A11	BrOfficial_Counter	"I think what is **important** is that we don't just have a period of calm, but progressively, within that, we're able to start to reopen the border crossings, get not just humanitarian aid in, but also get some of the business going in Gaza again"
	Mainstream	"The **main** alternative, according to officials, is to seek U.N. Security Council recognition of a Palestinian state in the West Bank, Gaza and east Jerusalem, the territories Israel captured in the 1967 Mideast war"
Y1	BrOfficial_Counter	"It is to prevent Iran acquiring **nuclear** weapons capability; but it is more than that, it is to put a stop to the Iranian regime's policy of de-stabilisation and support of terrorism"
	Mainstream	"A new U.N. nuclear agency report shows that Tehran has now amassed nearly twice as much enriched uranium as the West wants removed from Iran. That finding is likely to increase Western opposition to a **nuclear** deal that Iran says would build trust about its atomic activities"
Y2	BrOfficial_Counter	"Whereas once, influence was carried by word of mouth and through books and newspapers, today the **internet** and 24 h media allow access to a global audience with examples of course of young people being radicalised solely by contact with the internet"
	Mainstream	"The Zionist regime's ambassador to the UN Gabriela Shalev sent a letter to Secretary General Ban Ki-moon asking that the international community intervene to prevent the ship approaching Gaza, the **website** of the Israeli regime paper Haaretz daily reported"
S5	BrOfficial_Counter	"The world **community** must show as much its capacity for compassion as for force. The critics will say: but how can the world be a **community**? Nations act in their own self-interest. Of course they do. But what is the lesson of the financial markets, climate change, international terrorism, nuclear proliferation or world trade?"
	Mainstream	"After democratic elections last year, the government formed by **Hamas** was paralysed by a punishing Western aid freeze and the withholding by Israel of Palestinian tax revenue"
M5	BrOfficial_Counter	"Likewise, we must see what more scope there is to contract **helicopters** commercially to do some of the routine tasks, and free up helicopters for the frontline"
	Mainstream	"China is a strong ally of Pakistan and Islamabad draws heavily on Beijing for its defense and infrastructure needs. Pakistan's air force has a fleet of Chinese **aircraft**, including F-7PGs and A-5s, but also U.S.-built F-16s and French Mirages"
K1	BrOfficial_Counter	"If Europe and America are together, the others will work with us. If we split, the rest will **play** around, **play** us off and nothing but mischief will be the result of it"
	Mainstream	"The Israeli air force **played** a key role in a fierce three-week offensive in Gaza early last year, which began with airstrikes that killed hundreds of Hamas fighters"
X6	BrOfficial_Counter	"in conflict **resolution**; encouraging investment; and access to our markets so that we practise the free trade we are so fond of preaching"
	Mainstream	"Azizi added that the demolition is also motivated by the government plan to take advantage of the priceless land on which the palace was located. 'Because of the corruption that pervades its institutions, the Revolutionary Guard is not only dominating political **decision** making but also the economy"'

Bold font corresponds to a word from a shared category.

(Worry, Concern, Confidence; Emotional Actions and States), thought processes (Attention; Trying; Wanting, Planning, Choosing), residence (Residence; Areas Around/Near Buildings; Remaining/Stationary; Furniture and Household), and a series of categories that one might not expect, such as Plants, Weather, Light, Cleaning and Personal Care, Sports, Music, and Drama. Such categories may be indicative of shared metaphorical language use. There are also categories which point to narrative structure (Linear Order) and interpretation or evaluation (Seem; Open/Closed, Hidden/Hiding, Finding/Showing; Physical Attributes).

The categories shared by the British Official counter messages and Arab mainstream media messages appear to be in large part driven by business, industry and the economy. These categories would tend to suggest a capitalist master narrative, which may suggest that Arab mainstream media is borrowing

TABLE 5 | Showing numerical breakdown of shared conceptual categories between message types.

Corpus/Corpora	No. shared categories	% of categories
Extremist/Muslim_Counter/Mainstream/ BrOfficial_Counter	27	25.96%
Extremist/Muslim_Counter	8	7.69%
Extremist/Mainstream	6	5.77%
Extremist/BrOfficial_ Counter	3	2.88%
Muslim_Counter/Mainstream	3	2.88%
Muslim_Counter/BrOfficial_Counter	8	7.69%
Mainstream/BrOfficial_Counter	11	10.58%
Extremist/Muslim_Counter/mainstream	0	0.00%
Extremist/Mainstream/BrOfficial_Counter	2	1.93%
Muslim_Counter/Mainstream/BrOfficial_ Counter	1	0.96%
Extremist/Muslim_Counter/BrOfficial_ Counter	3	2.88%
Extremist	6	5.77%
Muslim_Counter	1	0.96%
Mainstream	6	5.77%
BrOfficial_Counter	2	1.93%
Total	87 (of 104)	83.65%

from this narrative. Similarities between Religious authored counter messages and extremist messages are drawn on social grounds, with most of the categories falling under the domain of "Social Actions, States and Processes," according to the automated semantic categorization system used. Categories overused by both the Religious authored counter messages and British Official counter messages are more what one might describe as surface deep, referring mainly to categories that define the scale or bounds of something, or otherwise belong to the domain of "General and Abstract Terms" within the USAS classification scheme. These categories refer to actions.

To understand whether or not these initial observations mean that one message form is borrowing from the master narrative of another, one needs to look deeper into the data and explore how authors position themselves and others in relation to the conceptual categories and beyond. In other words, one needs to apply the three levels of narrative analysis outlined in the section "Semantic Concordance Analysis" to the results presented in **Tables 1–4**.

Positioning Analysis of Overlapping Categories

In **Table 1**, the examples of categories B4.Cleaning and Personal Care and L3.Plants provide evidence of shared metaphor use between the message types. The extremist and Religious authored counter messages share metaphors of cleansing, with Religious authored counter messages speaking of the need to clean the soul, while extremist messages liken hypocrisy to dirt that one struggles to "wipe off." Meanwhile, Arab based mainstream media and British Official counter messages make frequent use of brushing or sweeping metaphors to reference issues that cannot be ignored and, by implication, must be dealt with. Interestingly, all message

TABLE 6 | Listing shared conceptual categories between selected groups of message types.

Extremist, Muslim_Counter, mainstream, and BrOfficial_Counter		
L3. Plants	N6. Frequency	X7. Wanting, planning, choosing
B4. Cleaning and personal care	S3. Relationship	A15. Safety/danger
K2. Music	X5. Attention	K4. Drama and the theater
K5. Sports and games	W4. Weather	W2. Light
E6. Worry, concern, confidence	X8. Trying	O4. Physical attributes
A8. Seem	F4. Farming and horticulture	H5. Furniture and household
N4. Linear order	I4. Industry	I1. Money generally
H4. Residence	M8. Remaining/stationary	
E1. Emotional actions and states	A10. Open/closed, hidden/hiding	
H3. Areas around/near buildings	F2. Drinks	
BrOfficial_Counter and mainstream	**Muslim_Counter and extremist**	**Muslim_Counter and BrOfficial_Counter**
G1. Government and politics	S9. Religion	S6. Obligation and necessity
M7. Places	A5. Evaluation	X4. Mental object (means, method)
I2. Business	S7. Power relationship	A13. Degree
I3. Work and employment	S2. People	A4. Classification
A11. Importance	E2. Liking	A7. Definite
Y1. Science and technology	P1. Education in general	A1. General actions
Y2. IT and computing	S8. Helping/hindering	N5. Quantities
S5. Groups and affiliation	S1. Social actions, states and processes	A14. Exclusivisers/particularisers
M5. Movement and transportation: air		
K1. Entertainment generally		
X6. Deciding		

forms make use of the metaphor of the tree. However, this is utilized for different purposes.

In extremist messages, the tree metaphor is often used to describe Muslims and is embedded in tree symbolism present in Islam, which Reat (1975, p. 2) describes as "a universal symbol of order in the midst of chaos." In this case, as with British Official counter messages referenced below, the extremist message author here positions their audience as a disparate one, using the tree metaphor as a means of expressing a desire to restore order. In Religious authored counter messages, Arab mainstream media messages and British Official counter messages, the tree (or plant) is used as a means of representing terrorism or the aggressor, who has roots and branches, grows and must be uprooted or "pulled out." The mainstream example mixes this metaphor with one of disease (see use of the word "microbe"). In mainstream messages (and, indeed, in other message forms), this category can also be used to literally refer to trees. In mainstream messages, this particularly applies to olive trees, which are a source of contention and conflict between Israelis and Palestinians.

Whilst Religious authored counter messages and British Official counter messages may share similar metaphor use, the positioning in example Muslim_Counter L3 reveals that, while terrorism is perceived as a mutual issue, for religious counter message authors, governments can also be seen as part of the problem. By placing "civilized world leaders" in quotation marks, the author simultaneously distances themselves from such individuals and questions their integrity, underlining this with use of the pronoun "they" (a further distancing strategy) before referring to leaders not wanting to hear about the "true" causes of terrorism, thus implying that world leaders are dismissive and refuse to acknowledge their role in the problem.

With regard to narrative structure, which is indicated by use of the category N4.Linear Order, one can observe that both the Religious authored counter messages and extremist messages most commonly use the word "then." However, for extremist message authors, this tends to be used for the purpose of listing events in chronological order, which emphasizes the out-group's continued interference (in this case, collaboration between the United States and Iran in relation to the Taliban). In Religious authored counter messages, authors tend to use "then" as a means of reasoning with their audience, i.e., if X then Y. Arab mainstream media and British Official counter messages most frequently use the words "last" and "first," respectively. In British Official counter messages, "first" is generally used to mark an order of prioritization, while in mainstream media, "last" is used either as a marker of finality (as illustrated in **Table 1**), or to refer to past events that have relevance to the present (e.g., "last month").

There are similarities demonstrated between the Religious authored counter messages, Arab mainstream messages and extremist messages with respect to categories X7. Wanting, Planning and Choosing and H4.Residence. In category X7, all three of these message types refer to the desire for Muslims to lead a quality life, while in category H4, Muslims are positioned as the recipients of external aggression. In category E1.Emotional Actions and States, however, Religious authored counter messages refer to a cultural master narrative of tolerance and compassion that can be traced back through history, while extremist message authors tend to use this category to highlight the positive morale felt by their own in-group of fighters, linking this morale to the morale felt by those fighting against oppression, as described in the Quran. In British Official examples for categories H4, E1 and X7, there is a sense in which the authors are speaking to a disparate audience. The "our" referred to in British Official counter message example X7 consists of a range of different communities rather than a single unified one, which requires effort to maintain (as indicated by, "we have to work at").

In **Table 2**, extremist and counter-extremist authors position themselves in a similar way with regard to the state of Israel (this is one of the "enemies" referred to in example Muslim_Counter S1 and is the "They" referred to in example Extremist E2) and political interference in Iraq (see Muslim_Counter S7), with both referring to underhand dealings or corruption on the part of those in power, see "plotting against it" and "the truth" in Extremist S1 and Muslim_Counter S1. Both sets of authors position themselves as members of the Muslim community. However, the authors are not addressing themselves to the same audience.

The Extremist S7 example positions certain members of the Muslim community (scholars, leaders of particular Arab nations) within what it refers to as "the New World Order" and sets "Muslim scholars" firmly in the out-group with "They say we have to" (Extremist P1). Here, the "we" refers to the general Muslim public, of which particular Muslim scholars are not seen to be a part. Meanwhile, counter-extremist authors identify themselves as Muslim scholars *and* as being a member of their Muslim community and place terrorists (those who attack non-combatants) on a par with autocratic leaders (see example Muslim_Counter S7).

The examples presented in **Table 3** largely corroborate the initial interpretation of similarities between the British Official (BrOfficial_Counter) and Religious authored counter messages (Muslim_Counter), in that both define the boundaries of physical action, boundaries that are not too dissimilar from one another. Both argue for having no choice but to act in the face of a perceived aggressor. See, for example, BrOfficial_Counter X4 in **Table 3** and Muslim_Counter S2 in **Table 2**. A number of the BrOfficial_Counter examples speak to a master narrative of securitization (for example, BrOfficial_Counter A14), i.e., framing terrorism as an issue of security and counter-terrorism as a means of protecting the "safety" or "security" of one's in-group and the borders of that in-group, which has been said to define European political responses to terrorism (Tsoukala, 2006).

Nevertheless, the Religious authored counter-extremist messages also speak to the concepts of security and safety in defining the boundaries of action, see, for example, Muslim_Counter S1 in **Table 2** and Muslim_Counter A4 in **Table 3**. However, for religious counter message authors, these boundaries are defined for them by the word of Allah and Islam's religious scripture. From this perspective, only these sources should dictate action and not external forces or individual opinions (see, for example, Muslim_Counter A14, A1 and A7), and therefore one cannot take matters into one's own hands (see Muslim_Counter A4).

One can again observe, via the positioning present in examples, that British Official counter-extremist messages and Religious authored counter-extremist messages do not identify themselves as members of the same in-group or address the same audience. Example BrOfficial_Counter A4 is a good example of this positioning. When the author states "their case is that," they refer to extremists, setting these individuals firmly in the out-group category. However, the author is addressing the Muslim community at large and goes on to state "we know" (i.e., Western nations), "you know" (i.e., "Muslim communities"). While this statement suggests solidarity, it still separates Muslims from the author's in-group. In other examples (such as BrOfficial_Counter A14), British Official counter authors address their messages to the entire British public, referring to "our concepts" and "our notions." However, this assumes that all members of the British public share these concepts and notions, which are based on a system of Western values.

In a similar way, Religious authored counter messages also set extremists as the outgroup, such as in example Muslim_Counter S6 ("they should have fought") and Muslim_Counter A7 (in which Bin Laden is labeled a "disgusting fool"). However, the West, and nations within this sphere, are also described in a manner that is outside the authors' in-group and something that requires resistance, see for example, Muslim_Counter S6 and Muslim_Counter X4. Note that within the statement "has convinced Muslims [in-group] that the *only* way to fight the West [out-group]," the use of the adjective "only" infers that there are other ways to fight or resist the West.

The examples presented in **Table 4** show that there is a degree of mainstream English language Arab media borrowing from a capitalist master narrative, with references to the economy (Mainstream X6), defense and infrastructure (Mainstream M5), tax revenue (Mainstream S5), and forms of business and trade (Mainstream I2 and Mainstream M7). Further, the mainstream messages report on stories of concern to the West, such as the Iranian nuclear enrichment program (see example Mainstream Y1).

However, there is another key point of cross over between the message forms, in that British Official counter-extremist messages contain narratives of resistance, while Mainstream Arab English language media reports narratives of resistance, whether in a direct or indirect manner. Examples Mainstream X6 and Mainstream M7 give voice to those challenging government control. Voices are also given to those resisting trade embargoes (Mainstream I2) or capital punishment (Mainstream I3). The mainstream messages further report narratives of opposition between groups, including in examples Mainstream G1 and Y1.

Mainstream message positioning also reveals its similarities to both extremist and Religious authored counter messages with regard to resistance to Israel and positioning the West as an out-group. In Mainstream S5, the article's author points out that the election of Hamas was "democratic" and describes Western actions in response as "punishing." Israel is referred as a "Zionist regime" in Mainstream Y2. In example Mainstream A11, the author states, "the main alternative, *according to officials*" (in relation to peace negotiations between Israel and Palestine), thereby distancing the author from this view. The way in which authors refer to out-group actors and frame the actions of out-group members is demonstrative of a more indirect form of resistance.

Practical and Theoretical Implications

This paper set out to empirically test the hypothesis that non-extremist narratives overlap with a Salafi Jihadist master narrative (and those of similar groups and individuals), specifically, the argument that "Mainstream Islamic narratives indirectly support the master narratives of Salafi Jihadists because in some instances there exists considerable overlap between the two" (Al Raffie, 2012, p. 22). The results of the quantitative comparative analysis provided some support for this hypothesis, revealing that Salafi Jihadist and related material only significantly differed from all forms of non-extremist material considered on around 6% of conceptual categories that were examined. However, this analysis included British Official counter messages and showed that 25% of categories were shared by all message forms.

Nevertheless, the analysis demonstrated conceptual overlap between extremist messages and both Religious authored counter messages and Arab mainstream media messages on selected sets of categories. Though the extent of overlap between these particular message forms was not demonstrably different from the extent of overlap between Arab mainstream media messages and British Official counter messages, or Religious authored counter messages and British Official counter messages.

While the subsequent qualitative positioning analysis did further corroborate elements of similarity between the narratives used in extremist and non-extremist material, it further revealed a series of nuanced differences that were obscured by the quantitative comparison. These nuanced differences pointed to multiple layers of positioning, which are said to characterize counter narratives (Bamberg and Andrews, 2004, p. x). If one considers all message types included in the present analysis as forms of counter, or resistance narrative, then one begins to better understand the similarities between these forms of material. Message forms may practice their resistance in a direct and overt manner, or more indirectly (as is the case with mainstream media reporting, which does so via giving voice to resistance, reporting on resistance, or via editorial labeling and story framing).

Sometimes the master narratives that groups are opposing are the same. Religious authored counter messages and extremist messages, for example, both oppose a narrative of Western dominance, while Religious authored counter messages and British Official counter messages both oppose an extremist narrative that actively calls for violence against civilians/non-combatants. However, the message forms also demonstrate their own narratives of resistance, identifying with their own in-groups, addressing their own audiences and defining their own out-groups. The final section of this paper will expand on why each of the message forms can be seen as a form of resistance narrative, and what implications this finding has for counter-extremism policy.

Andrews (2004) defines counter-narratives as "the stories which people tell and live which offer resistance, either implicitly or explicitly, to dominant cultural narratives." In this respect,

extremist messages are themselves a form of counter-narrative, offering resistance to a dominant Western cultural narrative and anyone identifying as a Muslim who adopts any aspect of this master narrative. Indeed, HM Government's (2013, p. 1) Prevent strategy defines extremism as a form of opposition, i.e., as "vocal or active opposition to fundamental British values, including democracy, the rule of law, individual liberty and mutual respect and tolerance of different faiths and beliefs."

As the analysis in this paper has demonstrated, both Religious authored counter messages and Arab mainstream media messages can also be observed to resist elements of a dominant Western master narrative, just as extremist message authors can be found to align with elements of this narrative, albeit with an alternative framing. For example, extremist message authors also refer to a desire for freedom and liberty, but their perspective on what this entails and the manner through which it is achieved differs from British Official authors. As Andrews (2004) argues, "counter-narratives exist in relation to master narratives, but they are not necessarily dichotomous entities." A group may borrow elements of a particular master narrative, while resisting others. Mainstream messages may borrow elements from a capitalist master narrative, but reject other elements of capitalist societies, while Religious authored counter messages may, like extremist messages, borrow from a cultural master narrative of fighting oppression, but reject elements that argue for the fighting of non-combatants.

Further ways in which the message forms can be seen as forms of resistance narrative emerge from specific elements of their linguistic performance. Sandberg and Andersen (2019, p. 445) interviewed a set of participants to investigate counter-narratives to those of jihadist extremist organizations, referring to the narratives they observed as "narrative resistance to master narratives that describe Islam as a religion of war and terrorism." Among the resistance narratives the authors observed were "criticizing extremist jihadist organizations for false interpretations of Islam and using derogatory terms to describe them." Note that these observations bear similarities to extremist message authors' descriptions of what they refer to as "sham" or "bogus" scholars, whom they perceive as incorrectly interpreting their religion.

If one views extremist messages as a form of resistance narrative, what does this mean in practical terms for counter-extremism policy? Literature on resistance narratives offers us potential insights. In relation to resistance narratives, Andrews (2004, p. 1) states that:

"When, for whatever reason, our own experiences do not match the master narratives with which we are familiar, or we come to question the foundations of these dominant tales, we are confronted with a challenge. How can we make sense of ourselves, and our lives, if the shape of our life story looks deviant compared to the regular lines of the dominant stories? The challenge then becomes one of finding meaning outside of the employments which are ordinarily available. We become aware of new possibilities."

Extrapolating from this statement, some individuals may find meaning in extremism (whether framed in religious terms or otherwise), which is turned to as a means of resisting a dominant narrative into which they do not fit. Framed in this way, countering extremism becomes a question of individual identity. How do individuals make sense of themselves and how do they see themselves in relation to dominant cultural narratives? Given an understanding of this, how can we assist the individual in finding meaning and what positive new possibilities might be offered to the individual as a result?

In practical terms, this could involve investment in, or capitalizing on, grass-roots projects and initiatives that seek to understand the layered nature of individuals' identities, and to guide individuals toward roles and outlets that allow them to explore and exercise these identities. At a national level, the observations made here problematize top-down attempts to define a singular, unified national identity and associated values within counter-extremism policy, in that such efforts impose a dominant perspective that could be said to generate resistance from those who do not perceive themselves to fit the defined frame; individuals one might wish to engage with. Instead, a starting point might be to draw on the aforementioned projects and initiatives to co-create a bottom-up definition of national identities (plural) and values, which overtly recognizes and acknowledges the complexities, oppositions and tensions at play.

This paper concludes with a caveat. Whilst this piece has provided insights into the overlaps between extreme and non-extreme message content, it is worth highlighting that there are limitations to the methodology and analysis techniques used. The analysis entailed a detailed reading of concordance examples and the reporting of illustrative examples of patterns and trends observed within these examples. Nevertheless, one might argue that the insights provided are surface-deep in nature. Future work should look to explore similarities in content further, for example, by taking sets of texts from each of the message types which contain a high number of the overlapping concepts identified here and exploring whether such texts employ similar arguments and rhetorical strategies. One possibility would be to explore whether non-extreme messages with conceptual similarity to extremist messages employ the types of strategies previously identified in studies of extremist messages (see Prentice et al., 2011). Such an analysis would strengthen the connection between conceptual and rhetorical similarity.

DATA AVAILABILITY STATEMENT

The datasets presented in this article are not readily available because of the nature of the material collected and analyzed. Permission to use the material can be obtained via a data sharing agreement with Lancaster University. Requests to access the datasets should be directed to PT at p.j.taylor@lancaster.ac.uk.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Faculty of Science and Technology (FST) Ethics Committee, Lancaster University, United Kingdom. Written

informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

SP was responsible for the first draft of the manuscript, collection of the mainstream and extremist datasets, partial collection of the counter-extremist dataset, and analyses. PT has provided subsequent additions and amendments and co-created (with SP) the idea for this study and also supplied some of the analysis material. Both authors contributed to the article and approved the submitted version.

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The Radicalization of Brexit Activists

Clare B. Mason, David A. Winter, Stefanie Schmeer and Bibi T. J. S. L. Berrington*

Department of Psychology, Sport and Geography, University of Hertfordshire, Hatfield, United Kingdom

Brexit activists demonstrating outside the British Houses of Parliament were studied *in situ* to examine their potential for pro-group extreme behavior. This involved activists of two polarized, opposing views; those of Leave and Remain. The research engaged concepts linking the different theoretical perspectives of identity fusion and personal construct psychology. The study measured participants' degree of fusion to their group using a verbal measure. Willingness to undertake extreme acts was assessed in several ways: a measure of willingness to fight for the group, adaptations of the trolley dilemma and questions regarding political violence. Individual construing was examined using repertory grid technique and a semi-structured interview. Results were similar for both Leave and Remain participants. The majority of activists identified as "fused" to their group and, if so, were more likely to undertake hypothetical extreme behavior compared to those who did not identify as "fused." Repertory grid technique indicated that becoming an activist provided individuals with a clearer and more positive view of themselves. Opposition activists were construed more negatively and extremely than fellow activists, and this construal was associated with an increased willingness to undertake extreme pro-group behavior. This was consistent with the personal construct model of radicalization and was heightened in those who were "fused." Interview data provided support for the constructivist model and revealed characteristics and concerns of the two groups. Overall, the findings indicate that campaigning organizations contain fused individuals, who are more likely to undertake hypothetical pro-group violence including self-sacrifice. This has broader implications which may be particularly pertinent, given the violent impact of extremist activists around the globe.

Keywords: Brexit, activist, radicalization, constructivist, identity fusion, extreme pro-group behavior, repertory grid

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Concetta Papapicco,
University of Bari Aldo Moro, Italy
Christian Cecconi,
Sapienza University of Rome, Italy

****Correspondence:***
Clare B. Mason
c.mason7@herts.ac.uk

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INTRODUCTION

From the 2016 referendum to its official departure from the European Union (EU) in 2020, the United Kingdom was characterized by passionate and divisive arguments. Politicians were labeled as "heroes" or "traitors," friends became "ex-friends," even close family ties were stretched to breaking point and it was unsurprising that "Leave" and "Remain" demonstrations often escalated into aggressive and violent clashes as a result of such impassioned dispute and the emergence of partisan groups. But what leads an individual to undertake violent actions on behalf of their group? The question reaches beyond Brexit, extending to other activist groups motivated by strongly held beliefs. This includes the actions of animal rights activists, far-right extremists and the faith-based extremism of individuals involved in devastating acts of terrorism.

In this study, the identity fusion and personal construing of individuals demonstrating for and against Brexit are explored. Their willingness to undertake acts of extreme behavior on behalf of the group is also examined.

On 24 June 2016, after a fiercely fought campaign, Britain voted to leave the European Union by a majority of just 4%. This resulted in a bitterly divided nation and political paralysis.

Prime Minister David Cameron resigned as a result of the referendum, after which the subsequent Prime Minister, Theresa May, launched a two-year process of departure from the EU by triggering Article 50[1] on 29 March 2017. However, with insufficient parliamentary support, Mrs. May was forced to request an extension to the country's withdrawal proposals on three occasions before finally resigning on 24 July 2019. The following Prime Minister, Boris Johnson, called a General Election on 12 December 2019, winning an increased parliamentary majority and committing to leaving the EU swiftly. At 11 p.m. on 31 January 2020, almost 4 years after the referendum, the United Kingdom departed the European Union.

During the prolonged Brexit period, the hopes and anxieties of campaign groups were raised and dashed at each departure date and postponement. Members of Parliament were vilified for voting counter to their constituency majorities. Demonstrators outside the Houses of Parliament increased in number and displayed increasing animosity toward one another. Aggressive verbal abuse and violent scuffles between opposing activists, as witnessed by the first author, increased in frequency and vehemence. Whilst much of this was at a minor level, violent action on behalf of the group suggested commonality with the process of radicalization.

For many, radicalization is synonymous with terrorism. However, it is a process involving a progression of thought. Individuals can be found at various points along this pathway, including non-violent stages (e.g., Borum, 2003; Wiktorowicz, 2005; Moghaddam, 2009; Winter and Feixas, 2019).

During the Brexit campaign, violence was used by a small number of activists in an attempt to achieve their goal by defending an opinion (Busby, 2019) or by intimidating a minority (e.g., Burnett, 2017; Rzepnikowska, 2019). This is in line with the EU definition of radicalization as "a phenomenon of people who regard the use of violence as legitimate and/or use violence themselves in order to achieve their political objectives which undermine the democratic legal order and the fundamental rights on which it is based" (European Union Committee of the Regions, 2016, p. 4). Thus, whilst Leave and Remain are far from terrorist organizations, the process by which some campaigners became violent may follow the same pathway as an individual who progresses further, to acts of devastating terrorism.

Identity fusion theory and personal construct psychology provide a useful and novel theoretical framework to investigate this phenomenon.

Social identity theory (Tajfel, 1978; Tajfel and Turner, 1979) proposes that a person's sense of self involves the groups they belong to. It distinguishes between personal identities as those involving individual qualities, such as kindness, and social identities as those referring to groups, such as nationality. For most, there is a clear distinction between the two. However, Swann et al. (2009) propose that for some individuals, these identities fuse together. While social identity theory suggests that the salience of one type of identity decreases when the other is strong, the identity fusion approach proposes that although fused, both identities remain strong, responding in a synergistic manner to produce exceptional investment in the group. This can manifest in personally costly, pro-group behaviors, including self-sacrifice (e.g., Swann et al., 2010a) and fighting for the group (e.g., Gómez and Vázquez, 2015). It can also be predictive of altruistic acts such as rushing to the aid of bomb victims (Buhrmester et al., 2015). Identity fusion is readily seen in familial relations (Vázquez et al., 2019) but is also observed in many collective groups, even where the individual is unacquainted with the majority of their members. This includes political movements where group members recognize that others share their core characteristics, making them appear "family like" and, potentially, worth dying for (Swann et al., 2014a), such as the Brexit campaigns.

Personal Construct Psychology (PCP) was devised by the American psychologist George Kelly. In essence, it proposes that individuals are like scientists. They continually devise, test and revise personal theories to understand their world and anticipate future experiences (Kelly, 1955). Construct systems (the "theories") are comprised of personal constructs that are bipolar in nature. For example, "good" has meaning when related to "bad." An individual will place "elements," such as people at different points along each of their constructs, depending on their experiences of the person concerned. This enables an anticipation and understanding of people and their behavior. Constructs are arranged in hierarchies with superordinate constructs subsuming those that are subordinate. For example, "good—bad" may subsume "intelligent—stupid." If subsequent experiences challenge, or invalidate, the individual's predictions, they will generally revise these. For example, if an individual perceived as "good" later verbally assaults someone, the individual might be reconstrued as "bad." However, after several such experiences, the "good—bad" construct itself might need to be revised. In this way, individuals are able to continue to understand and predict the world around them. However, sometimes invalidation can be immensely problematic, particularly if it affects an individual's core constructs, which are those which embody fundamental values, a sense of self and identity. This is thought to occur in those who become radicalized.

The constructivist model of radicalization (Winter and Feixas, 2019) provides the guiding theoretical framework to this study. It describes several stages to radicalization, as outlined below. With its basis in how the individual views, anticipates and responds to the world, this model is able to accommodate the concepts of other pathways to and models of radicalization (Winter and Feixas, 2019, p. 3–5).

1. *The radicalized individual has a history of invalidation of his/her construing, particularly in regard to core aspects of self-construing.* This leads the individual to a state of uncertainty, a factor recognized by other authors as being linked to radicalization (e.g., Hogg et al., 2013).
2. *Invalidation can sometimes involve one or more episodes that lead to massive invalidation, and act as "transformative*

[1]Article 50 is the legal mechanism for a member state to leave the European Union and withdraw from its treaty obligations.

triggers." This occurs when several superordinate structures, including core constructs, become invalidated in a short period of time. The resultant extreme uncertainty is experienced as intense anxiety, threat and associated emotional responses.

3. *The individual with a very undifferentiated (and thus inflexible) construct system may be particularly vulnerable to such invalidation and consequent structural collapse.* Individuals with undifferentiated (inflexible) construct systems have a limited view of events. Their construct system cannot easily provide an alternative understanding and they may be particularly vulnerable to construct invalidation.
4. *His/her radical beliefs, usually drawing upon available social constructions, allow the development of a "turning point" in his or her sense of identity with a more structured and certain view of the world.* Following attempts to reconstrue in order to understand their experience, an individual may turn to an ideological framework to restore certainty, reduce anxiety and have a new core role as a member of the group.
5. *The development of an extreme negative construction of another group, which may be perceived as responsible for the individual's invalidations, allows further definition of the self by contrast with this group*. The negative construing of the out-group facilitates a positive view of the self.
6. *The individual's radical constructions are validated by contact with others who share similar views, often coupled with constriction of their previous social world to avoid further invalidation*. Radicalized individuals will often reduce their social contacts to those who are their primary source of validation.
7. *The likelihood of acting upon radical beliefs, including violent actions, is greater in those individuals in whom beliefs in such actions provide the greatest increment in the structure of his/her view of the self*. Taking extreme actions may enhance the structure and certainty provided by their new role.
8. *Reconstruing of violence as acceptable may be necessary if the person is to engage in such acts without guilt (and indeed to experience guilt for not engaging in them).* It is possible for violence to be reconstrued as a legitimate form of action by the group. It may even be seen as essential in a "supreme" goal.
9. *His/her radical view of the world may be shored up by "hostility," in Kelly's (1955) sense of extorting evidence for the individual's constructions.* Kelly (1955) describes hostility as when an individual is unable to revise their construct system to understand new events and instead forces the evidence to fit. In this way, radicalized and extremist views are maintained despite invalidations from others, that is, the majority of society.
10. *Similar processes may operate in members of the "other" group, creating a vicious cycle of extreme construing based on mutual validation of extreme negative views of the other.*

Using a novel combination of PCP and identity fusion measures, the study aimed to examine the construing of Leave and Remain activists demonstrating outside the British Houses of Parliament. These dichotomous, polarized groups were expected to demonstrate typical and possibly extreme group dynamics, making them a pertinent study population. Significantly, the study focused on "real-world" activists, rather than students or laboratory-based participants. It investigated whether Brexit activists were fused to their group and if this influenced their willingness to undertake hypothetical extreme and violent pro-group behaviors. It also examined whether their construing was consistent with the constructivist model of radicalization.

The research extends the work of Swann et al. (2009) and Winter and Feixas (2019), by exploring the psychological processes of individuals demonstrating potential extremist activity, thus possibly allowing the development of an approach to help predict such behaviors.

MATERIALS AND METHODS

Participants

Sixty-five Brexit activists participated in the study (38 males, 27 females; age ranging from 23 to 80 years, $M = 56.30$, $SD = 12.2$). All had traveled to central London to demonstrate. Sixty-two (95%) were of British nationality (including dual citizenship), one was a non-British EU citizen, and two were non-British, non-EU citizens. Regarding political campaigning, 37 participants (57%) campaigned to remain in the European Union and 28 participants (43%) campaigned to leave. The greater number of Remain participants (57%) was an outcome of opportunity sampling, reflecting the difference in Leave and Remain numbers present at Brexit demonstrations (Mills, 2019).

Materials

Identity Fusion

The study measured participants' degree of fusion to their campaign group using the verbal measure of Gómez et al. (2011). This involved responding on a scale ranging from 1 to 7, strongly agree to strongly disagree, to a series of seven questions regarding their relationship with fellow activists. Examples of the questions include "I am one with other [Leavers/Remainers];" "I feel immersed in the [Leave/Remain] group;" "I make the [Leave/Remain] group strong."

Willingness to Undertake Extreme Acts on Behalf of the Group

In order to explore a hypothetical willingness to undertake extreme acts on behalf of the group, participants were presented with a series of adapted measures:

Questions Regarding Political Violence (adapted from Ginges and Atran, 2011). Participants were asked to respond with "I would do; I might do or I would never do" to the following questions:

> *Would you engage in political violence (including damage to property and persons) if [Leave/Remain] was to be forcibly dismantled before Brexit took place?*
> *Would you engage in political violence (including damage to property and persons) if it would gain the political change [Leave/Remain] are campaigning for?*

Trolley Dilemma. Two adaptations of the trolley dilemma (Foot, 1967; Swann et al., 2010a) were presented with graphical representation alongside the text.

1. Self-sacrifice to save five in-group members: Participants could choose to (a) do nothing and let a runaway trolley kill 5 fellow activists, or (b) sacrifice their life by jumping onto the track of the trolley to save the five fellow activists.
2. Self-sacrifice to save five out-group members or one in-group member: Participants could choose to (a) observe the situation, (b) sacrifice their life by jumping onto the track to divert the trolley to save five opposition activists (resulting in the death of one fellow activist), or (c) sacrifice their life by jumping onto the track to divert the trolley to save one fellow activist (resulting in the death of five opposition activists).

Measure of Willingness to Fight for the Group (Swann et al., 2010b). This involved responding on a scale ranging from 1 to 5, strongly agree to strongly disagree, to a set of seven questions regarding the participant's willingness to fight for the group. Examples of the questions include: "I would fight someone who was physically threatening another [Leaver/Remainer];" "Hurting other people is acceptable if it means protecting [Leavers/Remainers];" "I would sacrifice my life if it saved another [Leaver/Remainer]'s life."

Individual Construing

Repertory Grid. To examine their individual construct systems, participants were presented with a Repertory Grid (Kelly, 1955) adapted by Winter (2011) for the study of radicalization. Participants rated a supplied set of elements (people) against a series of bi-polar constructs. The elements were: self before and after becoming a [Leave/Remain] activist; ideal self; three fellow [Leave/Remain] activists (known to them personally or in the public arena); three opposition [Remain/Leave] activists (known to them personally or in the public arena); and a neutral individual (someone who is not interested in Brexit, known to them personally or in the public arena). Twelve bi-polar constructs were elicited by asking participants to make a distinction between successive triads of elements. That is, participants were asked an important way in which two of the elements (people) in each triad were similar and thus differed from the third. On a scale ranging from 1 to 7, participants then rated each element (person) on each construct, for example, how politically engaged—politically not engaged they considered a fellow activist to be.

Standardized grids containing pre-defined elements and constructs enable direct comparison between individuals and groups. As responses from the first eight participants demonstrated a high commonality in constructs, a standardized grid was produced using the most frequently elicited constructs, together with the construct "like me—unlike me" (**Figure 1**). Results reported refer to the standardized grids. As six of the initial eight participants also completed the standardized grid, the total number of participants was 63.

Analysis of repertory grid data was undertaken using the software programmes IDIOGRID (Grice, 2002) and GRIDSTAT (Bell, 2009). The measures derived were as follows (see also Grice, 2002):

i. *Correlation of Average Grids*. Average grids were produced for each group by IDIOGRID, which then provided a measure of general degree of correlation between the two average grids.
ii. *Tightness of Construing*. Principal component analysis of the repertory grid conducted by IDIOGRID provided an indication of tightness, or lack of differentiation, in construing. A higher value for the variance accounted for by the first principal component suggests a less flexible, more rigid and stereotyped way of thinking.
iii. *Distance from Ideal Self*. High scores on a measure of element distance provided by IDIOGRID indicate a construed dissimilarity of an element (person) from the ideal self, in other words a more negative construing of that particular element (person).
iv. *Salience of Fellow and Opposition Activists*. Measured by percentage sum of squares of the ratings provided for fellow and opposition activists in the repertory grid, again derived from IDIOGRID, higher scores indicate that the element (person) concerned holds more meaning for the individual and is likely to be construed more extremely.
v. *Conflict in Construing*. This refers to a logical inconsistency in construing, as defined by Bell (2004). The percentage of conflict in construing associated with different elements was established using the software programme GRIDSTAT (Bell, 2009).
vi. *Discriminatory Capability of Constructs*. The discrimination between elements (people) that each construct is responsible for is measured by IDIOGRID by the percentage of the sum of squares accounted for by the construct (Higher scores indicate higher discriminatory capability and greater usefulness of the construct).

These measures provide an indication of:

- similarity in the construing of different groups (measure i);
- tightness of construing (measure ii);
- the relative positive/negative construing of the self before and after becoming an activist (measure iii);
- the relative positive/negative construing of fellow and opposition activists (measure iii);
- the relative salience (meaningfulness) of fellow and opposition activists (measure iv);
- the relative amount of conflict associated with becoming an activist (measure v);
- the relative amount of conflict associated with fellow and opposition activists (measure v);
- the relative usefulness of constructs (measure vi).

Interview. All participants were invited to undertake a semi-structured interview which was centered around the following questions:

Why did you become a member of the [Leave/Remain] campaign group?
What life experiences led you to join?

Self before activism	Self after activism	Ideal self	Fellow activist 1	Fellow activist 2	Fellow activist 3	Opposition activist 1	Opposition activist 2	Opposition activist 3	Neutral person	Constructs	
										1	7
										Politically engaged	Not politically engaged
										Activist	Less outspoken
										Democratic	Undemocratic
										Compassionate	Lacking compassion
										Informed	Ill informed
										Intelligent	Not intelligent
										Having integrity	Not having integrity
										Kind	Unkind
										Likeable	Unlikeable
										Stressed	Not stressed
										Happy	Unhappy
										Like me	Unlike me

FIGURE 1 | Repertory grid (adapted from Winter, 2011).

What changes have you experienced since becoming a member of [Leave/Remain] group?
Have you witnessed or been involved in any violent incidents whilst campaigning?
How close do you feel to your fellow [Leave/Remain] group members?

The interview transcripts were analyzed using a hybrid deductive and inductive approach as described by Fereday and Muir-Cochrane (2006), adapted to incorporate Braun and Clarke's (2006) Thematic Content Analysis methodology. This approach enabled a search for evidence of the constructivist model whilst also allowing for themes to emerge directly from the data. For the deductive approach, a code book was developed a priori. Codes and sub-codes were established for each stage of the constructivist model. These were labeled, defined and a description provided of how they may present in the text. To ensure the applicability and rigor of the code book, an interview transcript was selected as a test piece and independently coded by two of the authors. The results were compared and no modifications to the predetermined code book were required. In the inductive thematic content analysis approach, codes were developed as they emerged from the data, and again reviewed by two researchers for rigor. The emergent themes would provide an indication of the characterization and concerns of the two groups.

Procedure

The study took place during the later stages of the Brexit process, from February 2019 until the United Kingdom left the European Union on 31 January 2020. Participants were approached by a female experimenter whilst actively campaigning outside the Houses of Parliament in Westminster, London. Participants completed the study *in situ*. Privacy and confidentiality were provided by appropriately distancing from others.

RESULTS

General Analytical Approach

Analysis was undertaken to identify participants who identified as "fused" according to the measure of Gómez et al. (2011). Previous studies (e.g., Swann et al., 2009) indicated that, compared to non-fused participants, those who were fused would be more willing to undertake hypothetical acts of extreme pro-group behavior and self-sacrifice on behalf of the group. Noting that effects are more apparent in strongly fused subjects (Swann et al., 2014b), those in the mildly fused category were excluded from comparative analyses.

Parametric and non-parametric tests used to examine group differences were *t*-tests (independent and paired samples) and Mann-Whitney *U* and Wilcoxon tests respectively. Kendall's tau was used to examine relationships between measures where data were not normally distributed. Where cell frequencies fell below the required threshold, Fisher's exact test was used as an alternative to chi-squared. Non-parametric tests were used where conditions for parametric tests were not met.

Fusion "categories" were determined through mean item scores of the identity fusion verbal measure (Gómez et al., 2011):

Not fused < 5.0
Fused mild ≥ 5.0 and < 6.0
Fused moderate ≥ 6.0 and < 7.0
Fused strong $= 7.0$.

Study Population in Terms of Identity Fusion and Campaign Group

The proportion of study participants described as fused (mild to strong) was substantial, 71% of the study population, with similar totals occurring in both Leave and Remain groups. However, a difference appeared on first observation of the fusion subcategories (**Table 1**). The Leave population appeared to have a higher proportion who were moderately fused, and were the only participants appearing in the strongly fused category. In contrast, a larger proportion of Remain participants appeared in the mildly fused category. However, these differences were not found to be statistically significant, $\chi^2 = 3.22$ ($p > 0.05$) and no statistically significant difference was observed between the identity fusion scores of Leave ($Mdn = 41.00$) and Remain ($Mdn = 40.00$), U(NLeave $= 27$, NRemain $= 38$) $= 423.50$, $z = -1.28$, $p = 0.21$ (two-tailed).

TABLE 1 | Identity fusion category according to Brexit referendum vote.

Group and fusion category	*n*	As proportion of total population (*N* = 65)	As proportion of Leave (*n* = 28) or Remain (*n* = 37) subsample
Fused (all)			
Total	46	70.8%	-
Leave	19	29.2%	67.9%
Remain	27	41.5%	73.0%
Fused (moderate + strong)			
Total	22	33.8%	-
Leave	12	23.1%	53.6%
Remain	10	15.4%	27.0%
Fused (moderate)			
Total	19	29.2%	-
Leave	9	13.9%	42.9%
Remain	10	15.4%	27.0%
Fused (strong)			
Total	3	4.6%	-
Leave	3	4.6%	10.7%
Remain	0	0.0%	0.0%
Fused (mild)			
Total	24	36.9%	-
Leave	7	10.8%	25.0%
Remain	17	26.2%	45.9%

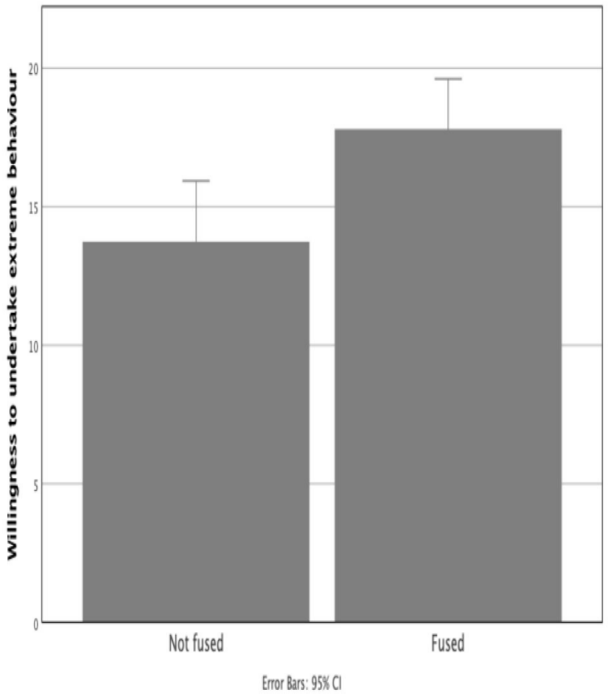

FIGURE 2 | Measure of willingness to undertake extreme pro-group behavior (Swann et al., 2010b).

Extreme Pro-group Actions

Willingness to Undertake Extreme Behavior on Behalf of the Group

Fused participants (fusion measurement score, Gómez et al., 2011) ($M = 19.09$, $SD = 7.06$) were significantly more willing than non-fused participants ($M = 13.74$, $SD = 4.56$) to undertake hypothetical extreme acts on behalf of the group (according to the measure of Swann et al., 2010b), $t(63) = 2.84$, $p < 0.001$ (**Figure 2**). This was observed to a greater extent in the Leave subgroups, Leave Fused ($M = 21.92$, $SD = 7.03$) and Non-fused ($M = 12.22$, $SD = 4.21$), $t(19) = 3.66$, $p < 0.001$. Results for Remain were not significant. This may be due to the relatively smaller proportion of Remain activists in the moderate-strong fusion category.

Predicting Extreme Pro-group Behavior

Linear regression analysis indicated a significant model for the positive relationship between fusion measure scores (Gómez et al., 2011) and willingness to undertake extreme behavior (Swann et al., 2010b), $F(1, 63) = 15.93$, $p < 0.001$. The fusion score accounted for 19% of the variability in willingness to undertake extreme behavior. The regression equation was: Extreme pro-group behavior score = 1.53 + (2.76 × fusion score). In summary, fusion score (Beta 0.45, $p = <0.001$) significantly predicted a willingness to undertake extreme behavior.

Sacrificing One's Life to Save Fellow Activists

The analysis of responses to the first adapted trolley dilemma suggested that the likelihood of (hypothetically) sacrificing one's life to save five fellow activists (rather than doing nothing) was somewhat greater for fused participants than non-fused participants [$p < 0.05$ (one-tailed), Fisher's exact test].

The effect was enhanced in the second trolley dilemma where fused participants declared that they were even more likely to sacrifice their life to save just one fellow activist when there were also options to either save five opposition activists or do nothing [$p < 0.001$, (one-tailed), Fisher's exact test]. In this case, there is a heightened willingness to sacrifice one's life for a fellow group member, when faced with the alternative of saving opposition activists. This suggests that the pre-eminence of one's group is heightened in the presence of the opposing group.

Participation in Political Violence (Including Damage to Persons and Property)

Fused participants were somewhat more likely than non-fused participants to indicate that they might or would engage in political violence if the group were forcibly dismantled [$p < 0.05$ (one-tailed), Fisher's exact test].

In comparison, fused participants were not more likely than non-fused participants to indicate that they might or would engage in political violence to achieve the group's aims. This suggests that for fused participants there is greater importance attached to group membership than its goals.

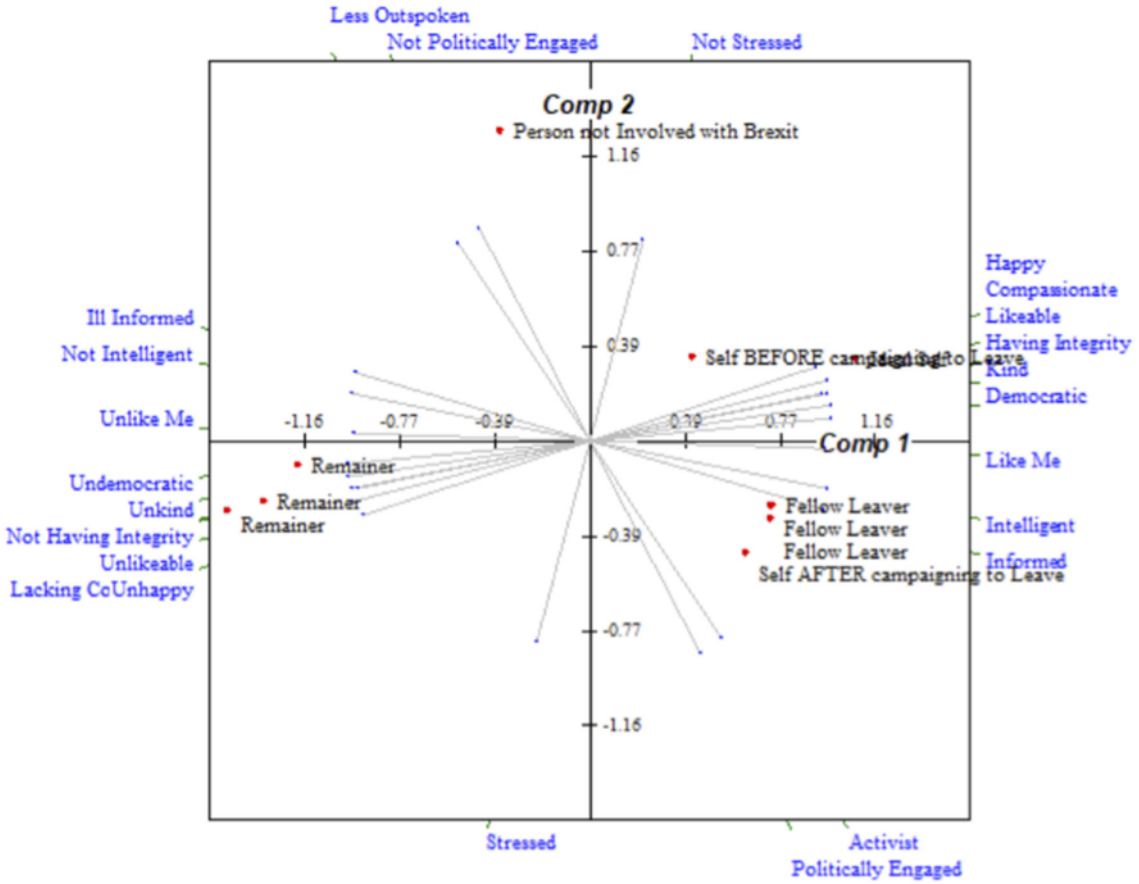

FIGURE 3 | Plot of elements in construct space for Leave average grid.

The Construing of Leave and Remain Activists (From Analyses of Repertory Grid Data)

Correlation of Average Grids

The correlation between Leave and Remain average grids (calculated using IDIOGRID, Grice, 2002) highlights the similarity of the groups. Leave and Remain average grids were very highly correlated (general degree of correlation = 0.94), particularly the fused groups (general degree of correlation = 0.95). A lower correlation was observed between the non-fused groups (general degree of correlation = 0.82), perhaps reflecting the reduced group effect and reduced homogeneity of those who are not fused to a group. Plots of elements (people) in construct space derived from principal components analysis of the Leave and Remain average grids are shown in **Figures 3**, **4**. These demonstrate the mirrored similarity of the two groups. Both groups see themselves as moving closer to their ideal self on becoming an activist. There is also a distinct and extreme difference in the positive and negative construing of fellow and opposition activists, respectively, for both Leave and Remain.

Tightness of Construing

The percentage of variance accounted for by the first principal component was similar for both groups, and there was no statistically significant difference between the two, Leave $M = 63.33\%$, $SD = 10.64$, Remain $M = 65.35\%$, $SD = 8.26$, $t(60) = 0.82$, $p = 0.42$ (two-tailed). This suggests that equally tight systems of construing were present in both of the groups involved in demonstrating in the Brexit debate.

Construing of the Self Before and After Activism

Element distance measures derived from the repertory grid allow measurement of how closely to their ideal people construe themselves. In this study, participants' responses suggested that becoming an activist brought them closer to their ideal self (**Figure 5**). That is to say, they construed themselves more positively after becoming an activist ($M = 0.59$, $SD = 0.25$) than before ($M = 0.74$, $SD = 0.27$), $t(60) = 3.84$, $p < 0.001$ (one-tailed).

Construing of Fellow and Opposition Activists

Unsurprisingly, opposition activists ($M = 1.28$, $SD = 0.15$) were construed in a more negative manner, as reflected in average distance from the ideal self, than fellow activists ($M = 0.61$, $SD = 0.19$), $t(60) = 20.10$, $p < 0.001$(one-tailed) (**Figure 6** and **Table 2**). The magnitude of difference is notable, at ∼2-fold throughout all groups.

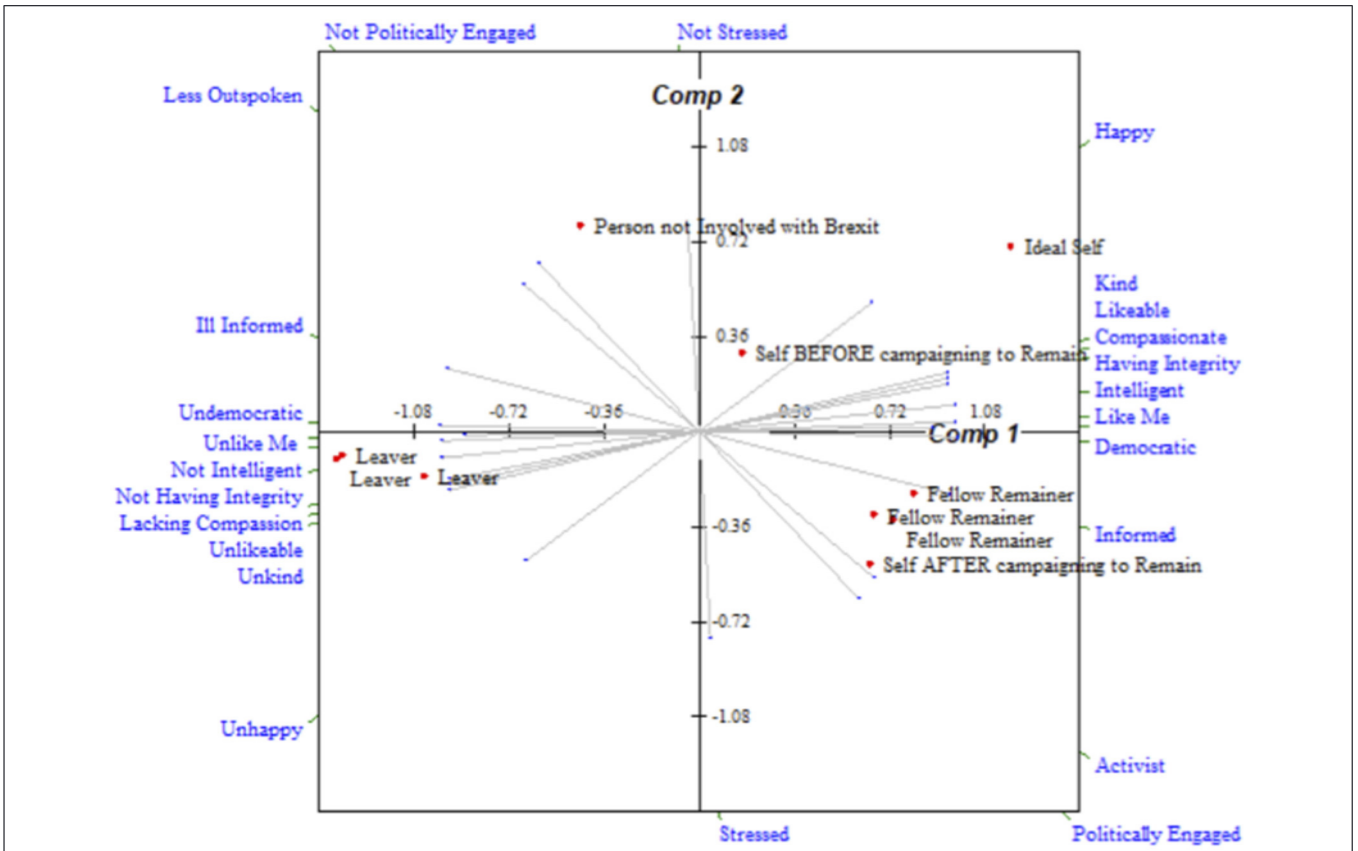

FIGURE 4 | Plot of elements in construct space for Remain average grid.

Salience of Fellow and Opposition Activists

Opposition demonstrators (M = 15.02, SD = 2.87) were shown to be considerably more meaningful to, or extremely construed by, participants than their fellow activists, as indicated by the percentage sum of squares (M = 6.24, SD = 1.65), $t(60)$ = 18.59, $p < 0.001$ (one-tailed). The difference was amplified in fused individuals (and shown to be statistically significant in both Leave and Remain groups, all p's < 0.001) (**Figure 7** and **Table 3**). The greater values observed in fused participants appear to reflect an enhanced polarization of construing. The significance of the opposing political campaigner to the individual may be a contributory driver, or possibly a response, to becoming an activist. Politically neutral individuals were found to be less meaningful than opposition campaigners, $z(60)$ = 2.32, $p < 0.001$ (one-tailed).

Conflict Associated With the Self Before and After Becoming an Activist

There was a decrease in conflict in construing associated with becoming an activist (M = 9.12, SD = 2.87), compared to the self before doing so (M = 9.80, SD = 3.36), $t(60)$ = 3.84, $p < 0.001$ (one-tailed). In other words, becoming an activist provided a less conflicted and clearer sense of self.

Conflict Associated With Fellow and Opposition Activists

A significantly smaller amount of conflict was associated with participants' construing of fellow demonstrators (M = 8.64, SD = 1.63) compared to opposition activists (M = 11.97, SD = 8.51), $z(60)$ = 4.56, $p < 0.001$ (one-tailed) (**Figure 8**). This indicates that participants have a clearer and less conflicted way of construing those with similar than those with opposing beliefs. The large magnitude of difference may be unsurprising given the substantial differences observed in other measures (such as the valence of construing and salience of fellow and opposition activists).

Constructs

Using IDIOGRID (Grice, 2002), it is possible to determine which constructs are responsible for most discrimination between the elements (people) in a repertory grid, in other words, arguably these are the constructs that are most important to the individual (as explored below). **Table 4** displays the constructs responsible for more than 9% of the total sum of squares (i.e., an above average amount in a grid with 12 constructs).

Democratic—Undemocratic. The construct "democratic-undemocratic" appears particularly important for the Leave group. This was reflected in discussions with participants, who

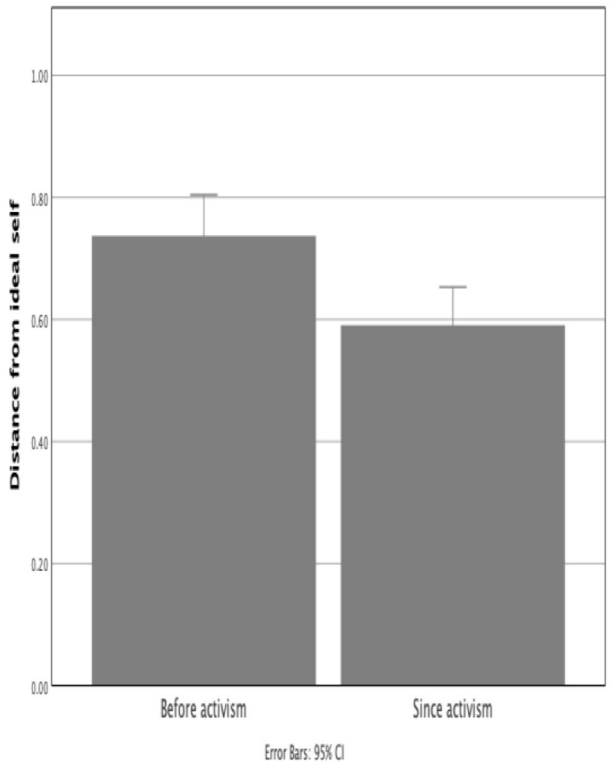

FIGURE 5 | Distance from Ideal Self of participants before and after they become activists (smaller distances indicate a more favorable construing).

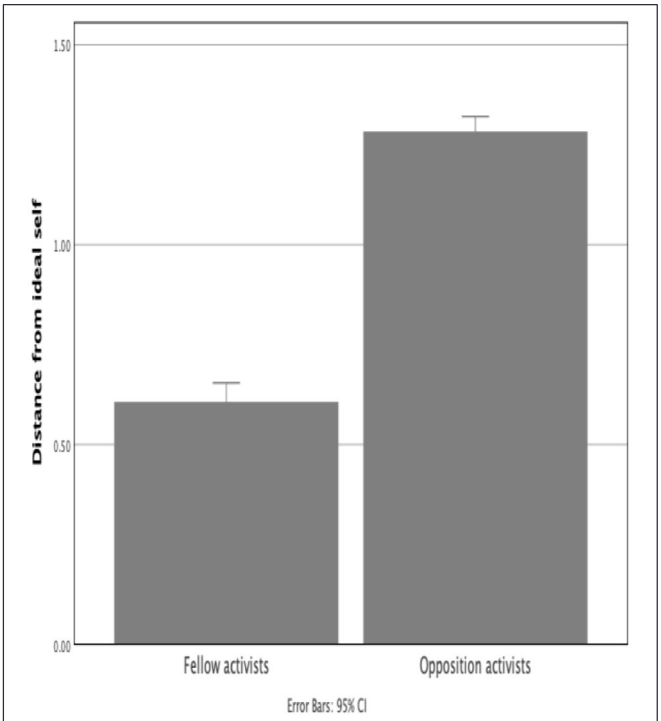

FIGURE 6 | Distance from Ideal Self of fellow and opposition activists (larger distances indicate a more negative construing).

strongly expressed their feelings that the referendum outcome was not being honored and that this was undemocratic.

Having Integrity—Not Having Integrity. "Having integrity—not having integrity" appears to be important in all Leave groups but only in the Remain fused group. This may reflect the strongly expressed opinions of Leave activists regarding, for example, Members of Parliament (MPs) who voted in parliament differently to the referendum vote of their constituency. These MPs were referred to as "traitors" and would be discussed in tandem with discussions of the democracy of the Brexit process.

Activist—Less Outspoken. In contrast, for the Remain group the "activist-less outspoken" construct was critical, perhaps reflecting the importance of demonstrating.

Like Me—Unlike Me. "Like me-unlike me" also discriminated highly between elements in the Remain group, suggesting that it is particularly important to Remain activists whether a person is like them or not. This perhaps reflects an increased polarity in thinking about fellow and opposition activists, as well as the importance of homogeneity to the Remain group.

Informed—Ill Informed. "Informed—ill-informed" appears to be important to all groups other than the Remain fused group. This was surprising, as the Remain activists were a very informed group (in discussion with the author they would demonstrate a sound knowledge of the detailed issues involved in the Brexit debate).

Correlation of Measures

Willingness to undertake extreme behavior was positively correlated with the distance of opposition activists from the ideal self, $\tau(60) = 0.18$, $p < 0.05$ (two-tailed). This suggests, perhaps unsurprisingly, that individuals who were more willing to undertake extreme behavior were those who construed opposition campaigners most negatively.

Time since becoming an activist was positively correlated with the (hypothetical) likelihood of:

- sacrificing one's life to save one fellow activist whilst abandoning five opposition activists to their death, $\tau(63) = 0.23$, $p < 0.05$ (two-tailed).
- undertaking political violence if the group were dismantled, $\tau(63) = 0.20$, $p < 0.05$ (two-tailed).

This suggests that time spent with fellow demonstrators increases the willingness to undertake hypothetical extreme acts of pro-group behavior.

Interview Data Analyses

Of the 65 participants in the study, 30 took part in the interview, of which there were 14 Leave and 16 Remain participants.

Deductive Analysis

Deductive analysis demonstrated support of the constructivist model, as illustrated by the following quotes from participants, presented in relation to the stages of the model that they were considered to represent:

TABLE 2 | Distance from the Ideal Self of fellow and opposition activists by group (larger distances indicate a more negative construing.

Group	Distance from Ideal Self		Significance of difference in distance from Ideal Self	
	Fellow activist Mean (SD)	Opposition activist Mean (SD)	*t*-value	*p*-value (1 tailed)
Total				
Total	0.61 (0.19)	1.28 (0.15)	20.10	<0.001
Not fused	0.59 (0.20)	1.27 (0.15)	10.41	<0.001
Fused	0.63 (0.20)	1.32 (0.13)	11.77	<0.001
Leave				
Not fused	0.65 (0.20)	1.23 (0.13)	6.14	<0.001
Fused	0.63 (0.18)	1.31 (0.14)	9.05	<0.001
Remain				
Not fused	0.53 (0.20)	1.30 (0.17)	9.39	<0.001
Fused	0.64 (0.24)	1.35 (0.13)	7.19	<0.001

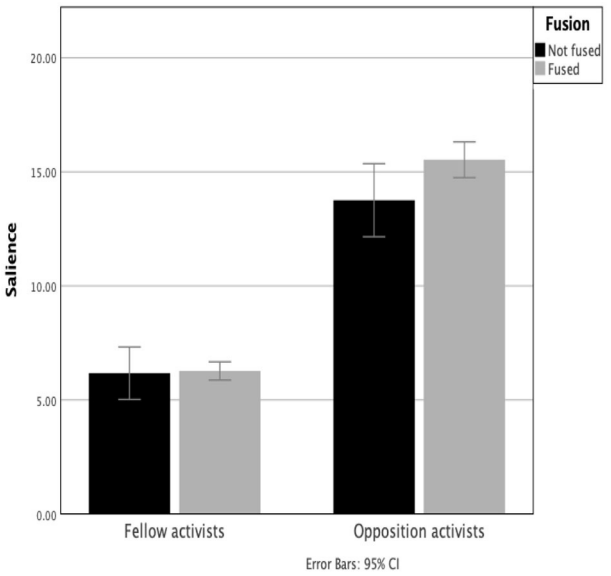

FIGURE 7 | Salience of fellow and opposition activists by fusion category.

1. The radicalized individual has a history of invalidation of his/her construing, particularly in regard to core aspects of self-construing.

   "I believe in being a patriot, I believe in democracy, and we had a democratic vote and Leave won and Remain lost, so I'm here defending and supporting because day by day everything looks like it's slipping away slowly." Leave activist 1005
   "It's a very worrying stress and it's, it's deeply hurtful because I feel like all the best parts of my country are being ripped away by lies" Remain activist 1019

2. Invalidation can sometimes involve one or more episodes that lead to massive invalidation, and act as "transformative triggers." This occurs when several superordinate structures, including core constructs, become invalidated in a short period of time. The resultant extreme uncertainty is experienced as intense anxiety, threat and associated emotional responses.

   "I was absolutely angry as I could ever be that they were trying to reverse the democratic vote" Leave activist 1023

3. The individual with a very undifferentiated (and thus inflexible) construct system may be particularly vulnerable to such invalidation and consequent structural collapse. Individuals with undifferentiated (inflexible) construct systems have a limited view of events. Their construct system cannot easily provide an alternative understanding and they may be particularly vulnerable to construct invalidation.

   "No. Nothing changes me. There is nothing to learn about it." Leave activist 1009
   "I was bullied as a kid at school and basically what the Tory party is doing now is bullying the country" Remain activist 1016

4. His/her radical beliefs, usually drawing upon available social constructions, allow the development of a "turning point" in his or her sense of identity with a more structured and certain view of the world. Following attempts to reconstrue in order to understand their experience, an individual may turn to an ideological framework to restore certainty, reduce anxiety and have a new core role as a member of the group.

   "I've changed a lot with it. I used to be withdrawn but I feel outgoing now and I'm happy with that" Leave activist 1009
   "I feel more involved now, more happy" Leave activist 1012
   "Campaigning has made me feel stronger!" Leave activist 1057
   "Brexit is a religion and ideology" Remain activist 1017
   "Even if it doesn't affect anything, it helps me, kind of selfishly, to feel more positive about the situation" Remain activist 1026
   "I felt very strongly about it and rather than worry at home I started to join in and I felt much better for it" Remain activist 1008
   "I wasn't a European federalist before but I would probably support it now" Remain activist 1019

5. The development of an extreme negative construction of another group, which may be perceived as responsible for the individual's invalidations, allows further definition of the self by contrast with this group.

   "I think they're traitors, I've always thought that. I'll tell them to their face they are traitors … I can't stand none of them … They are snakes, they are slimy" Leave activist 1005
   "They are just rather nasty people aren't they … they want to destroy a nation" Leave activist 1025
   "They've got no arguments, they are fools" Remain activist 1019
   "they are actually quite unpleasant … some of them are really quite nasty pieces of work" Remain activist 1027

TABLE 3 | Salience of fellow and opposition activists by group and fusion category.

Group	Salience of fellow activists Mean (SD)	Salience of opposition activists Mean (SD)	*t*-value	*p*-value (1 tailed)
Total				
Total	6.24 (1.65)	15.02 (2.87)	18.59	<0.001
Not fused	6.17 (2.31)	13.76 (3.22)	6.90	<0.001
Fused	6.41 (1.40)	15.29 (2.51)	12.91	<0.001
Leave				
Not fused	6.37 (2.58)	13.74 (2.68)	5.38	<0.001
Fused	6.81 (1.43)	14.79 (2.49)	8.68	<0.001
Remain				
Not fused	5.97 (2.15)	13.77 (1.28)	4.32	<0.001
Fused	5.88 (1.26)	15.95 (2.51)	10.67	<0.001

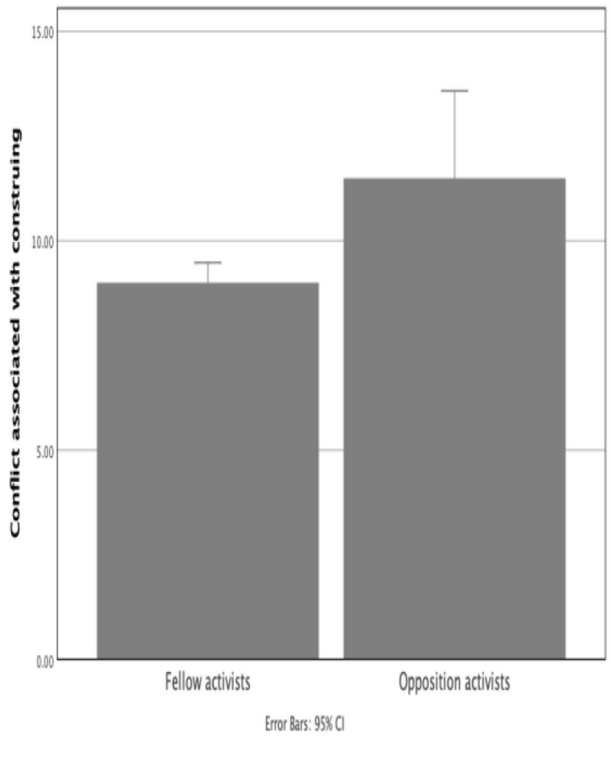

FIGURE 8 | Amount of conflict associated with the construing of fellow and opposition activists. A lesser amount indicates a clearer and less conflicted way of construing.

6. The individual's radical constructions are validated by contact with others who share similar views, often coupled with constriction of their previous social world to avoid further invalidation. Radicalized individuals will often reduce their social contacts to those who are their primary source of validation.

"it's not just similar values, it's principles … they are my favorite sort of people" Leave activist 1025

"the other people who were here were very similar to me in terms of you know, the kind of people they were" Leave activist 1010
"If there was no protest movement … I would probably not be standing outside on my own" Leave activist 1022
"I see us Leavers as family, it's a great thing" Leave activist 1041
"We're there for each other, like a family. We're a tribe!" Leave activist 1055
"You do pal up with people here … because they have similar views you actually quite like" Remain activist 1018
"it took a little while after the referendum result to realize that there was actually a campaign going on that I could be part of it. I think I joined the [town] for Europe group and then came up here" Remain activist 1015
"this is my family, this lot … I feel really close [eyes welling up with tears]. *I get very emotional when I think about this lot"* Remain activist 1019
"we are family" Remain activist 1003

7. The likelihood of acting upon radical beliefs, including violent actions, is greater in those individuals in whom beliefs in such actions provide the greatest increment in the structure of his/her view of the self. Taking extreme actions may enhance the structure and certainty provided by their new role.

"I'm getting up in the morning … I'm coming up there … that's what I mean I'm addicted" Leave activist 1021
"it's changed me from … a passive or indifferent Eurosceptic to being a confirmed active Brexit protester" Leave activist 1022
"I am quite happy to put in 6, 8, 10 h you know, cause what else would I do?" Remain activist 1004
"People aren't activists when they, join but they get more involved as they get more confident. It happens in steps. It starts with posting leaflets, then coming to meetings, getting more involved, then marching and demonstrating" Remain activist 1033

8. Reconstruing of violence as acceptable may be necessary if the person is to engage in such acts without guilt (and indeed to experience guilt for not engaging in them).

"I think those MPs who voted different to their constituents are going to get hurt. I can see people hurting them. I can see [female MP] *getting hurt, being attacked … I actually think they deserve it. Traitors! … If anyone gets hurt I don't care. I'll push them over. I threw water over* [high profile Remain campaigner] *the other day"* Leave activist 1005
"If anyone hurts someone in our group … we all jump in" Leave activist 1021
"well you know we take flags to places and um somebody came along and tried to help themselves to one … so a little scuffle ensued" Remain activist 1004
"dangerous times, but I still believe you should stand up for what you believe in" Remain activist 1007

9. His/her radical view of the world may be shored up by "hostility," in Kelly's (1955) sense of extorting evidence for the individual's constructions. Kelly (1955) describes hostility as when an individual is unable to revise their construct system to understand new events and instead forces the evidence to fit.

TABLE 4 | Constructs responsible for most discrimination between elements (>9.00%).

Leave			Remain		
Total	**Not fused**	**Fused**	**Total**	**Not fused**	**Fused**
Democratic-undemocratic (12.24%)	Activist-less outspoken (13.10%)	Democratic-undemocratic (11.14%)	Activist-less outspoken (14.13%)	Politically engaged-not politically engaged (14.38%)	Activist-less outspoken (11.39%)
Activist-less outspoken (9.96%)	Democratic-undemocratic (12.99%)	Having integrity-not having integrity (10.10%)	Like me-unlike me (12.93%)	Activist-less outspoken (12.46%)	Democratic-undemocratic (10.27%)
Having integrity-not having integrity (9.81%)	Informed-ill informed (9.82%)	Informed-ill informed (9.84%)	Politically engaged-not politically engaged (10.80%)	Like me-unlike me (10.72%)	Like me-unlike me (9.97%)
Informed-ill informed (9.71%)	Like me-unlike me (9.44%)	Like me-unlike me (9.76%)	Informed-ill informed (9.31%)	Informed-ill informed (10.46%)	
Like me-unlike me (9.66%)	Having integrity-not having integrity (9.24%)			Stressed-unstressed (9.48%)	
	Politically engaged-not politically engaged (9.06%)				

"The Germans are all-powerful in the EU, they are simply developing the Fourth Reich" Leave activist 1009
"I thought no … you've got to respect nearly half of the population was a clear vote to remain" Remain activist 1016

10. Similar processes may operate in members of the "other" group, creating a vicious cycle of extreme construing based on mutual validation of extreme negative views of the other.

Leave and Remain demonstrated similar processes, as evidenced here in the narrative and in the quantitative measures.

Inductive Analysis

Thematic analysis identified different themes for the Leave and Remain activist groups.

Leave Activists. Five principal themes were observed. These were dissatisfaction with the EU, destruction of democracy, the threat of immigration, the disregarding of their views and the Second World War.

Dissatisfaction With the European Union. Leave were dissatisfied with the EU and did not consider it beneficial for the country. This focused upon EU influence in limiting British government decision-making and the lack of accountability of EU officials.

"because I'm fed up with the way we get told to do things and the way that the EU run things" Leave activist 1012
"very good for Britain to come out… can run our own office... they can use the money to invest on our local issues like education.. can invest in the police" Leave activist 1024
"thinks it can dictate to all of the other countries on the continent this, just too radical" Leave activist 1025
"and then the commission isn't elected and doesn't actually propose the legislation and then you've got all the backhanders" Leave activist 1025

Destruction of Democracy. Leave activists were frustrated by the referendum vote not being delivered and considered this an erosion of democracy.

"we had democratic votes and Leave won and Remain lost, so I'm here defending" Leave activist 1005
"because that's what I voted for, that's what I expect you know 'cause I'm, I do believe in democracy right and because you're not gonna deliver the vote well that's not democratic" Leave activist 1021
"What did Emmeline Pankhurst fight for?" Leave activist 1011
"A big part of it is the fact that you have had a vote, had an outcome and it's not being followed" Leave activist 1023
"I don't understand why they would want to reverse a democratic vote which is what they are trying to do" Leave activist 1023

The Threat of Immigration. Leave participants believed that membership of the EU resulted in unrestricted numbers of immigrants, which they considered a threat to the United Kingdom.

"um I've been on all these sites where I've seen this happen and we are we are being totally invaded by the open-door policy" Leave activist 1005
"and it's full of people coming over, doing as much overtime as they can and then going back and getting all everything … no for nothing plus their income tax back and I've claimed my parents had no money, but they claim for nothing... they've worked hard" Leave activist 1011
"they will say those employers will say things like we've had British people here they don't work out or whatever, that is at best a distortion… a British person will stand up for themselves and might stand for something that … whereas certainly people er from our other countries not knowing their rights, they will not stand up for themselves" Leave activist 1022

The Disregarding of Their Views. Despite winning the referendum, Leave activists outside the Houses of Parliament considered themselves unheard and disrespected by the government, Remain campaigners and the police.
Government.

"we got politicians we can't trust" Leave activist 1005
"well yeah it's [parliament] *basically a bunch of snobs who look down on us peasants as people who are too stupid to know what they're voting for"* Leave activist 1025
"It's all some sort of game they [parliamentarians] *can, they can walk out. That's why they have so much fun. We can't, everything is on the line for us"* Leave activist 1025

Remainers.

"we've been involved in big heated arguments with the Remainers … we have been told to go home, we have been told to stop being stupid" Leave activist 1012

Police.

"and he did it again with somebody else and they called the police, but the police did nothing because I think they were just trying to keep things calm, because they were trying to push us away from that area down there away from where all the television" Leave activist 1010
"So we've started to come up and the amount of abuse we're getting it's unreal and the actual police are not doing a single thing about it which we get all the time" Leave activist 1021

The Second World War. Leave activists believed that the sacrifices of the Second World War were, in part, to preserve the sovereignty of the British nation.

"My father was in the Second World War, he was a fireman and saw awful things because we come from Lincolnshire, where it's 'Bomber County.' What did they fight for?" Leave activist 1011

Disassociation From far-right Protestors. Far right protestors, such as the 'yellow vests" were seen as too extreme. There was concern amongst Leave activists that they and their cause would be associated with this extreme group and their violence.

"*Yellow vests are a bit more militant*" Leave activist 1022

Remain Activists. Five principal themes were found. These were the benefits of the European Union, awareness of Britain's place in the world, dissatisfaction with political processes, personal experiences and the Second World War.

Benefits of the European Union. This includes ensuring peace, providing equality through opportunity, and ensuring standards.

"the EU you can't argue with the fact that it's the biggest peace project for the last 70 years" Remain activist 1016
"I remember the Berlin wall coming down … and I think it was just such a relief to have that barrier gone... we were all joined together… peace and cooperation" Remain activist 1008
"I'm from a working-class background … I feel that by exiting the European Union er opportunities for people like me are going to start shrinking" Remain activist 1020
"I think Europe has an ethos that says, that says something about fairness and opportunity for all" Remain campaigner 1003
"The European Union has actively, you know … doing things like roaming charges.. putting in employment rights protection, workers' rights and all of these little things, they all help the little person on their feet" Remain activist 1016
"The EU has done so much for environmental standards and food standards" Remain activist 1007

Awareness of Britain's Place in the World. Remain activists believed that Britain could not stand alone on the world stage and would benefit from cooperation with others.

"A lot of people over here seem to have this island mentality … Europe bad, old British is good and harking back to the Empire and all this nonsense, when we should be looking ahead and looking forward and trying to be positive about our neighbors and you know, we're all here to work together, we're all on the same planet" Remain activist 1016
"it's just realizing with such a small little island … that the world doesn't operate, you cannot operate on your own anymore. You have to be melded in into some sort of group identity or system" Remain activist 1007

Dissatisfaction With Political Processes. Remain were dissatisfied with the government and the referendum process.

"Change the government to a government that know what it's doing" Remain activist 1004
"If we have another year, the members of parliament are still going to be sat there.. in a year's time.. Wrapped up in circles in the same position.. Not finding a solution" Remain activist 1007
"there was a court case challenging the validity of the referendum … and the judges found that that the electoral law had been broken and um if it hadn't been, if the government were compelled to follow the results of the referendum, rather than it having been advisory.. it would have been null and void" Remain activist 1019
"a second referendum which isn't marred in cheating and um lies like the last one and we get a fair pop at things" Remain activist 1016

Personal Experiences. Remain frequently referred to their personal experiences and motivations.

"my real concern is that my children won't have the same opportunities" Remain activist 1017
"I am an EU lawyer… I advise UK business in particular on EU state aid law" Remain activist 1019
"I live in the West Country particularly into Cornwall where there are deprived areas" Remain activist 1019

The Second World War. Remain activists believed membership of the EU would ensure peace, in contrast to the experiences of the Second World War.

"my father was a Jewish refugee and his parents died in concentration camps and I see a lot of what Brexit is about is the rise of the Far Right, so that frightens me" Remain activist 1017

"my grandparents were worried about Hitler but believed the German people would stop him so they didn't do anything. But the German people didn't do anything and my grandparents, they died in a concentration camp. So, I can't do nothing now. The Far Right is active again and I can't let that happen again" Remain activist 1033

"what my father did after the war, he was sent to Berlin to help reconstruct Europe" Remain activist 1004

Fear of the Far Right. Remain activists were concerned with the influence and impact of the Far Right on British Society.

"I do fear the far right … but their issue isn't necessarily with the EU.. they're just against … multiculturalism and that's dangerous" Remain activist 1007

The narrative data thus reveal the Leave group as primarily concerned with their dissatisfaction with the EU and the destruction of democracy. In contrast, the Remain group's principal concerns were centered on the benefits of the EU and dissatisfaction with the British government. Themes the groups had in common included the Second World War and inequality, although these varied in character. For Leave, inequality referred to that between British citizens and foreign nationals whilst for Remain, it concerned the inequality between social classes.

DISCUSSION

Brexit activists demonstrating outside the British Houses of Parliament were studied *in situ* to examine their potential for pro-group extreme behavior. Results were similar for both Leave and Remain, with the majority of activists identified as "fused" to their group and, if so, being more likely to undertake hypothetical extreme behavior than non-fused participants. Constructivist measures indicated that becoming an activist provided individuals with a clearer and more positive view of themselves. Opposition activists were construed more negatively and extremely than fellow activists, and this construal was associated with an increased willingness to undertake extreme pro-group behavior.

The Brexit Context

For three-and-a-half years, the United Kingdom was in a state of flux as the nation and its government struggled to facilitate the Brexit vote of 2016. For many, families, friends and romantic partners would become estranged. For others, Brexit would be a taboo subject, unspoken for fear of its divisive nature and it was abundantly evident that allegiances with Leave or Remain contributed to the identity of a large proportion of the British population (Hobolt et al., 2018; Evans and Schaffner, 2019).

Whilst media representations were inaccurate [age, rather than class or geography, was the greatest vote determinant (IPSOS, 2016)], the nation had indeed been split into dichotomous, polarized groups. According to Turner et al. (1989), polarization occurs when group members conform to an extreme group-norm, as exemplified in the Brexit-based racial violence of 2016 (Burnett, 2017), and subsequent years saw many clashes between Leave and Remain, including those observed by the first author. As Hughes (2019, p. 88) points out in his book *Brexit Psychology*, "As things spiral further, soon it feels right to start defending your group from rivals. And of course, often the best form of defense is attack." Following Brexit, strong emotions have continued to be evident in, for example, social media debates involving participants not just from the UK but also various other countries, and including expressions of Schadenfreude by those who perceived Brexit as unjust at subsequent misfortunes suffered by the UK (Cecconi et al., 2020).

Leave and Remain Activist Groups

Whilst differences were observed in the characteristics of Leave and Remain, the more striking finding was their similarity. This included the proportion described as fused, their construing processes and their willingness to undertake hypothetical extreme behavior. Importantly, such similarities indicate that the findings were a function of group membership rather than political stance and are therefore relevant to activism beyond the Brexit campaign. These similarities also point to optimism for resolution of the UK's schism. Commonality between groups reduces their distinctiveness and can help develop more positive out-group attitudes and behaviors (e.g., Dovidio et al., 1997; Schori-Eyal et al., 2019). By recognizing the similarity in their core constructs, disparate groups can recategorize into one overarching collective with a new superordinate identity in which the in-group now encompasses former out-group members (Dovidio et al., 2000). Given the high level of commonality in this study, reconciliation should be possible between those who supported Leave or Remain. In fact, with the onset of Covid-19, a superordinate identity of "plagued nation" was observed within months of the Brexit departure. As the country entered lockdown, the entire nation initially became united in support of one another (e.g., Daily Mail, 2020) and discussion of Brexit halted. However, as Denning and Hodges (2021) suggest, high identification with a group and corresponding "counter-projection" (seeing the opposite of oneself in others) makes it more difficult to find common ground. It is therefore important to be mindful of identity fusion in attempts to reduce political conflict.

Whilst commonalities enable constructive dialogue, each group has a distinct identity and those of Leave and Remain have been well-researched (e.g., Hobolt et al., 2018; Manners, 2018; Peitz et al., 2018; Swami et al., 2018; Virdee and McGeever, 2018). Distinctive characteristics were also found in this study. Perhaps predictably, dissatisfaction with the EU was an important theme emerging from the Leave narrative, as were the destruction of democracy and the threat of immigration. In contrast, Remain found the benefits of the European Union, awareness of Britain's place in the world and personal experience held particular significance. These themes informed and shaped the groups' political stances. Interesting parallels also existed between the groups. Whilst similar, these were characterized in different ways. For Leave, inequality referred to that between British citizens and foreign nationals but for Remain, it concerned the inequality between social classes. Similarly, both groups emphasized the importance of the Second World War to the debate. Leave felt

that the sacrifices involved should be respected and enshrined in autonomous British sovereignty, whereas Remain believed that the European Union was essential to ensure the preservation of peace. Whilst Remain described positive experiences in other countries and cultures, Leave spoke exclusively about their lives in the United Kingdom. Such similarities and variations in themes are perhaps characteristic of polarized groups on opposing sides of a single issue.

These differences were echoed in the constructs identified as most salient from repertory grid analyses. For Leave demonstrators, the most important construct was "Democratic—undemocratic." They had assumed that the referendum outcome would result in an expeditious departure from the EU. However, Parliament's repeated rejection of withdrawal proposals destroyed their belief in democracy (and led to vehement shouting of "Traitor" at passing MPs). In comparison, for Remain, the construct "Activist—less outspoken" held most significance. This reflected their belief that protest was the only way to stop Brexit.

The Leave vote may also have been associated with collective narcissism (Marchlewska et al., 2018). Inflated belief in in-group greatness is contingent on external recognition of the in-group's worth and is associated with the success of populist movements (Golec de Zavala and Keenan, 2020). It involves an exaggerated perception of threat and a propensity for hostile responses (Cichocka and Cislak, 2020). As observed in the Leave narrative, the threat of immigration was a substantial concern and was encased in hostile terminology.

> "*we are being totally invaded by the open-door policy*" Leave activist 1005

Identity Fusion

Over seventy percent of the study population was found to be fused to their group. This is considerably greater than that observed in Swann et al.'s (2009) original study (41%), and likely reflects the study being undertaken *in situ,* where committed group members were actively demonstrating. In addition, both campaign groups were present throughout, either as demonstrators or as passers-by engaging in debate. The presence of an opposing group challenges the other, heightening in-group allegiance.

Hypothetical extreme pro-group behavior was more prevalent amongst the study's fused individuals, who tended to score more highly on all measures. This included an elevated willingness to fight for the group and to sacrifice their life to save a fellow group member. The latter was heightened when there was an option to sacrifice themselves for an opposition activist, again highlighting the effect of the presence of the opposing group and demonstrating the centrality of group interaction. This is also illustrated by participants being increasingly more willing to sacrifice their life and undertake political violence with increased time spent as a campaign group member. Time with fellow activists likely reinforces both inter- and intra-group dynamics and, as a result, the group becomes increasingly important to the individual, to the point where they are willing to undertake hypothetical extreme acts. The significance of the group is markedly emphasized in fused participants being more likely to anticipate undertaking political violence if the group were to be dismantled. That they were less likely to do so to achieve the group's aims is noteworthy, further clarifying that it is the group itself, rather than its political ambitions, that has the greater influence on extreme behavior. A recent study by Reiter et al. (2021) involving analysis of narrative data surrounding radicalization and deradicalization has further supported the importance of social identity and social belonging in both of these processes.

The willingness to undertake extreme pro-group acts may appear surprising considering the personal cost. However, it is the individual's extraordinary relationship with their group, rather than its aim, that motivates these actions. As Swann and Talaifar (2018) suggest, some fused individuals believe that even if they should die, they would continue to live on in the group.

As can be seen, the study's findings support the concept of identity fusion, its presence in activist populations and its association with extreme behavior. In addition, the verbal measure of identity fusion (Gómez et al., 2011) was supported and found to be predictive of scores on Swann et al.'s (2010b) measure of willingness to fight. This is valuable as it indicates a potential for the verbal fusion measure, with lower face validity, to assess the likelihood of pro-group behavior. It could therefore be usefully employed in programmes aimed at the prevention of extreme actions.

Processes of Construing

Becoming an activist provided individuals with clearer and more positive views of themselves. This was shown by an increased closeness to the individual's ideal self and decreased conflict in self-construing (from repertory grid analyses). This more positive and coherent self-view likely motivates individuals to begin and maintain activism.

Reflecting the polarization of the Brexit debate, opposition activists were construed in a substantially more negative and conflicted way than fellow campaigners. Notably, individuals found opposition activists to be more salient than fellow campaigners. This may indicate that, as described in social identity theory (Tajfel, 1978; Tajfel and Turner, 1979), extreme negative construing of the opposing group allows individuals to construe themselves more positively in comparison. This may be another motivation for activism and would be particularly relevant to Brexit demonstrators, who were in close proximity to the opposing group throughout. That these findings were amplified in fused participants highlights, once again, the importance of the opposing group in group effects.

Perhaps consistent with the view that "affective polarization" of one's own and an opposition group may have toxic consequences in, for example, leading to erosion of democratic norms and dehumanization of the other group (Moore-Berg et al., 2020; Arbatli and Rosenberg, 2021; Kingzette et al., 2021), those individuals who viewed opposing activists more negatively were found to be more willing to undertake hypothetical extreme pro-group behavior. Whilst this may be unsurprising, it suggests that repertory grid technique could be an effective measure to

develop as part of an assessment tool, for example in preventative programmes. Grids have low face validity and are thus able both to access construing at a low level of awareness and potentially to provide an indicator of likelihood of extreme pro-group behavior.

Constructivist Model of Radicalization

Repertory grid and interview data support the constructivist model of radicalization (Winter and Feixas, 2019). For example, the degree of tightness of the individual's construct system was consistent throughout the population and was also evident in activists' narratives. It may indicate a certain inflexibility associated with activism. As Winter and Feixas (2019, p. 4) suggest "The individual with a very undifferentiated (and thus inflexible) construct system may be particularly vulnerable [to radicalization]."

The interview provided vivid examples of activists' radical beliefs reducing anxiety by providing a more certain world view. This both reinforces and explains the repertory grid data which demonstrated that becoming an activist had a positive impact.

The study also supported the model's proposition that "extreme negative construction of another group …allows further definition of the self" (Winter and Feixas, 2019, p. 4). Brexit activists' construing of the opposing group was extremely negative (in both repertory grid and interview data), which would have enhanced the positivity and clarity of their self-view and identity. That a sense of self and self-esteem are achieved, at least in part, by negative viewing of an out-group may explain why opposition activists were construed as so much more meaningful than fellow campaigners. Tajfel and Turner's (1979) discussion of social hierarchies may also be relevant here. The lower a group's status, the less its contribution to a positive social identity. Group members react to this in several ways including redefining the comparison group in a more negative manner. Remain activists appeared to consider themselves of superior morality: *"Unlike Leave, we want peace across Europe"* [Remain activist 1026]. A threat to this superior, positive comparison would require defending. In contrast, Leave activists, despite having won the referendum, considered themselves the underdogs. They were consistently lower in demonstrator numbers and the "Westminster political bubble" was clearly pro-Remain. As a result, Leave supporters appeared to redefine the inferior-superior comparison by attacking Remain supporters on the morally unambiguous issue of democracy: *"They think they're right but they're making a mockery of democracy"* [Leave activist 1055]. These standpoints could also be seen in terms of Bandura's (1991) moral disengagement theory. The theory describes several mechanisms including, as here, moral justification. Similar findings were also observed in a study of polarized aggressive responses to an online sexist meme by Paciello et al. (2021).

That "Radical constructions are validated by contact with others who share similar views" (Winter and Feixas, 2019, p. 5) is also supported by the study's findings. Polarized construing is enhanced by informational influence (Turner et al., 1989). This includes the concept of the echo chamber, in which discussions are reduced to involve only those who are of a similar opinion. As a result, only identical and complementary arguments are heard and the viewpoint is reinforced and polarized, thereby validating the individual's (radical) constructions. This was evident in the data and in discussions between demonstrators at the Houses of Parliament. That individuals who had spent longer as activists were more willing to undertake pro-group behavior suggests that the more time spent with fellow activists, the greater the opportunity to reinforce and validate their political views.

Narrative data also provided an indication of reconstruing violence as acceptable. Several individuals from both Leave and Remain appeared to justify violent actions. Bandura (1991) also suggests that individuals morally justify harmful behavior by reconsidering it as essential to the attainment of a noble goal, as similarly described in the constructivist model and observed in this study.

The constructivist model suggests that the "radical view may be shored up by hostility" (Winter and Feixas, 2019, p. 5). The PCP concept of hostility is to extort evidence for a "social prediction which has previously been recognized as a failure" (Kelly, 1955, p. 375). For example, a Leave activist may construe a particular Remainer as a "bad" person but has no evidence to support this. The Leave activist may therefore behave in a manner to elicit such evidence and validate the negative construction. They could be verbally or physically aggressive toward the Remainer, provoking an equally aggressive response, and thereby fulfilling their prediction of the Remainer as "bad." This type of hostility was often observed during the study and in the interview. It has also been well-documented in the press (e.g., Osborne, 2019).

That "Similar processes may operate in members of the "other group," creating a vicious cycle of extreme construing" (Winter and Feixas, 2019, p. 5) is well-supported by the study in the abundance of similarity in the processes of Leave and Remain groups. This ranged from the willingness to undertake hypothetical extreme acts to the close correlation of repertory grids and similarities in interview narratives, to the levels of identity fusion.

The constructivist model of radicalization (Winter and Feixas, 2019) is supported by the study and Brexit activists' construing was consistent with that observed in studies of radicalization in Salafist Muslims (Winter and Muhanna-Matar, 2020) and analyses of the narrative of Anders Breivik (Winter and Tschudi, 2015), which supported the development of the model.

> As one study participant put it: *"I consider myself a radical. My job is to radicalize others"* (Participant 1003).

Radicalized Terrorism

Researchers such as Horgan (2017) have highlighted the lack of a terrorist profile in terms of educational level, personality traits or psychopathology although some individual and situational factors may contribute (e.g., Moghaddam, 2005). Rather, it tends to be the ordinary citizen who becomes a terrorist. Whilst Brexit activists are far from terrorists, the process in which some of these "ordinary citizens" become willing to undertake violence may follow the same pathway as individuals who progress much further. In this way, activist and campaign groups may provide a useful insight into the subject of radicalization and its often tragic

consequences, a psychological and socio-ecological approach to which is likely to be more productive than one that is purely security-driven (Miconi et al., 2021).

STRENGTHS AND LIMITATIONS

Whilst it presented many challenges, including aggressive demonstrators and the British weather, the real-world population of the study provided a great strength. Here was a population in which some individuals had been involved in violent actions (e.g., Busby, 2019). Thus, people who had undertaken actual extreme pro-group acts contributed to study data.

The novel integration of several methodologies was of equal value. It enabled the obtaining of data at both the group and individual level, thus providing a greater depth of understanding. Furthermore, whilst social identity research could be criticized for its use of self-reporting surveys, PCP techniques, particularly the repertory grid, are less vulnerable to dissimulation and more likely to access aspects of construing at low levels of awareness. Whilst PCP provides a comprehensive, detailed and far-reaching approach, social identity theory acknowledges the importance of group membership and, particularly, the role groups play in our sense of self and others.

The sample size was smaller than desired, particularly for subgroup analyses. However, statistically significant results were still obtained at this level.

The sampling method was opportunistic and therefore activists were not selected entirely at random. Activists who knew previous participants were more likely to take part as they observed the trust established between the researcher and a fellow group member.

CONCLUSION

The Brexit demonstrations of 2019–2020 provided a valuable opportunity to investigate identity fusion theory, the constructivist model of radicalization and the prediction of extreme pro-group behaviors.

A large proportion of the campaign groups were identified as fused and demonstrated an increased willingness to undertake personally costly, pro-group acts, including self-sacrifice. The constructivist model (Winter and Feixas, 2019) was supported and highlighted the progression of some activists along the pathway of radicalization. In line with previous research (Winter and Muhanna-Matar, 2020), Brexit activism provided individuals with a more positive and certain sense of self.

Given the considerable number of fused individuals found in the study, it would be worthwhile exploring identity fusion in other activist populations. Moreover, there is potential to develop the study measures for use within programmes involved in the prevention of radicalization-based violence. Both the repertory grid (Winter, 2011) and the measure of identity fusion (Gómez et al., 2011) have lower face validity, highlighting their usefulness as effective tools in assessment and prevention.

The innovative combination of theoretical backgrounds provided a valuable insight into the thinking and potential actions of activists. Given the severity of the violent impact of extremist activists around the globe, the findings of this study make an important contribution to the field.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the University of Hertfordshire Health, Science, and Engineering and Technology Ethics Committee with Delegated Authority. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

CM, DW, and SS were responsible for the design of the study and the structure of the paper. CM was responsible for data collection and for writing an initial draft of the manuscript, into which feedback from DW and SS was incorporated. BB was primarily responsible for the inductive analysis. All authors contributed to the article and approved the submitted version.

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Occurrence of Psychiatric Disorders, Self-Sufficiency Problems and Adverse Childhood Experiences in a Population Suspected of Violent Extremism

Christel Grimbergen[1]* *and Thijs Fassaert*[1,2]

[1] *Public Health Service, Amsterdam, Netherlands,* [2] *Department of Child and Adolescent Psychiatry and Psychosocial Care, Amsterdam UMC, Amsterdam, Netherlands*

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***Correspondence:**
Christel Grimbergen
chgrimbergen@ggd.amsterdam.nl

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Background: Public health-inspired programs for Countering Violent Extremism (CVE) have developed internationally in a relatively short period of time. Research into these programs is scarce. There is a need for information that helps drive public health interventions.

Objectives: To present data on the occurrence of psychiatric disorders, self-sufficiency problems and adverse childhood experiences (ACE) in a population suspected of violent extremism.

Methods: A cross-sectional study, with data from screening reports for 34 adult subjects included in a multi-agency case-based approach on violent extremism in Amsterdam, the Netherlands. Subjects were screened in the period between December 2015 to May 2021. Screening reports, which included the Screener for Intelligence and Learning Disabilities (SCIL) and the Dutch version of the Self-sufficiency Matrix (SSM-D), were used to gather information on the main outcome measures.

Results: Major psychiatric disease categories were found to be mood and anxiety disorders and mild intellectual disability (each 29.4%), substance related disorders (35.3%), personality disorders (41.2%), and psychotic disorders (14.7%). Complex self-sufficiency problems, measured by the number of people who had self-sufficiency problems in 4+ domains and the number of people who had similar self-sufficiency problems as homeless people in Amsterdam, were found in 35.3 and 32.4% of the client sample. The most prevalent ACE were emotional neglect (47.1%), household mental illness (44.1%), and loss of a parent (38.2%), 35.3% had been exposed to 4+ ACE. An association was found between N_{ACE} and self-sufficiency problems on two domains, namely "Mental Health" (rho = 0.51, p = 0.002) and "Law and order" (rho = 0.42, p = 0.013).

Conclusions: An accumulation of social and psychiatric problems in people suspected of violent extremism underlines the importance of professionals in health and social care being actively involved in developing CVE approaches.

Keywords: radicalization, violent extremism, terrorism, psychiatric disorders, mental health, self-sufficiency, public health, adverse childhood experiences

INTRODUCTION

It is generally assumed that law enforcement approaches alone are insufficient in countering violent extremism (CVE) and therefore need to be supplemented by public health approaches, thus shifting the focus to helping identify and engage with at-risk (vulnerable) individuals and intervene at earlier stages (1). Case-based or case-managed CVE programs have been developed internationally in a relatively short period of time, which in certain circumstances adopt a public health approach (2, 3). These combined law enforcement and public health (LEPH) approaches in violence prevention typically center around multi-agency collaborations in specific localities (4–6). "Local", because in line with international strategy (7), municipalities and their security chains are often given joint responsibility for the early detection of potentially risky individuals (8). "Multi-agency", because (mental) health and welfare authorities have important roles to play (1).

However, after more than a decade of developing such local CVE programs, research in the context of these programs is scarce and the question of "what works" is generally very difficult to answer (2, 9, 10). Current CVE approaches have an emerging, albeit small evidence-base in terms of risk and protective factors that drive public health interventions (3, 10). It has been argued that the scope and effectiveness of CVE programs is likely to be enhanced if research on violent extremism would be more in line with public health inspired violence research as well (3, 11). The social-ecological framework, for that matter, is a model that is used by organizations such as the World Health Organization and US Centers for Disease Control use in the development of public-health based violence prevention programs and in problem assessment and analysis (12). The framework is based on the notion that no single factor explains why some are at higher risk of interpersonal violence than others. Instead a number of interacting individual, social and environmental factors have to be taken into account the same argument has been made when it comes to explaining why individuals radicalize to violent extremism (13–15).

Against this background, the aim of this cross-sectional study is to present data on health (related) and social issues that have found to be prominent in violence prevention research. This is done in a population that consists of people suspected of violent extremism. Data were derived from a social-psychiatric health screening procedure conducted on a sample of clients who were participating in a CVE program in Amsterdam, in the Netherlands.

First and foremost, we present data on the prevalence of psychiatric issues among those enrolled in the program. This is important, given there has been a lack of studies that have drawn on data derived from clinical interviews or other associated primary sources involving individuals participating in CVE programs (3, 16). There is also the issue of differences in the measured prevalence of psychopathology depending upon the data sources that are used, with a higher prevalence in studies based on clinical examinations compared to studies that access police or judicial data or open sources (3, 10). The link between violent extremism, terrorism and psychiatric disorders has been the subject of a long-running debate that is still ongoing to date (17, 18). That is, various researchers have concluded that the prevalence of psychiatric disorders is not markedly elevated in groups of violent extremists and terrorists compared with the general population (13), which lead to the conclusion that psychopathology is irrelevant to understanding terrorism. On the other hand, these studies have been criticized in several ways (13, 18). Recent studies into certain subtypes of violent extremism (lone actor terrorists) in fact do find an increased prevalence of psychiatric disorders compared to the general population and other types of terrorists (13, 18–20). This includes schizophrenia, psychotic disorders, autistic spectrum disorders and anxiety disorders, which were more prevalent compared with the general population (15, 21). Suicide bombers may be more likely to have avoidant-dependent personality disorder, depressive and suicidal symptoms (22–25). Problematic personality traits were found in a group of Dutch Islamist extremists, with half of them displaying behavioral problems (26). Some studies have concluded that milder forms of psychopathology are relevant in some subtypes of terrorists, including group actors and leaders of terrorist cells (27). In general, these studies demonstrate that there is no common psychiatric diagnosis for violent extremists and terrorists: they are characterized by their diversity. Research into psychiatric disorders in radicalized populations (that is those not convicted of terrorist offenses) are relatively rare. In their systematic review, Trimbur et al. (28) found that the prevalence of mental disorders varied considerably from 6 to 41% across various studies. Only two studies included in this review (28) drew on clinical interviews and no study used standardized instruments to identify psychiatric disorders.

Second, this study addresses the occurrence of adverse childhood events (or experiences, referred to as ACE), such as physical abuse and parental loss in (early) childhood (29) in the same sample of radicalized individuals. That is, in spite of numerous studies in criminology that explain why and how exposure to ACE is associated with an increased risk of perpetrating violence and crime later in life, only few studies seem to have linked ACE to violent extremism (10, 30, 31). From a public health perspective on violence prevention, the

concept of ACE is important for a number of reasons. That is, research into long-term outcomes of ACE has revealed graded dose-response relationships, indicating that as exposure to ACE increases, so does the likelihood and magnitude of a variety of negative outcomes in adulthood (31, 32). This includes psychiatric disorders (33, 34) and substance use disorders (SUD) (35). Additionally, it has been shown, that multi-problem young adults who face a combination of mental health problems, substance abuse and who had contacts with the courts, are likely to have experienced one or more ACEs during childhood (36). What is even more important, ACE can be prevented (37). Thus, studying which ACE are prevalent in people suspected of violent extremism may provide starting points for new preventive strategies. Finally, ACE are associated with an even wider range of negative outcomes, so much so that it has been suggested ACE have a non-specific damaging effect on a range of functions, behaviors and outcomes (32, 38). What is more, research has demonstrated that a wide range of life experiences, specific stressors and complex needs that are associated with mental health disorders can also be present in the life of lone-actor terrorists (39). In a recent systematic review (10) it was found that poor family and partner relations and experiences of social isolation were linked to radicalization. Unemployment was also found to be an important factor associated with extremism and in some studies extremists were found to be more often (chronically) homeless. Studies of lone-actors show the presence of recent important life events associated with loss, bereavement and a diminishing social standard prior to their violent extremist acts. Other complex needs that have been studied and have an association with radicalized individuals include traumatic experiences, for example physical, sexual, emotional abuse, parental abandonment, domestic violence and discrimination, both in early childhood and later in life (10). While these studies illustrate a range of complex needs, life experiences and stressors, they point to a highly individual spectrum of risk and protective factors (24, 40), which is in line with the aforementioned socio-ecological model (12). Against this background, the third and final set of outcomes in this study include self-sufficiency problems, defined as the (in)ability to realize an acceptable level of functioning, by organizing appropriate care or support in the most important domains of daily life (41). These domains include (but are not limited to) mental health and substance use, housing, finances and social relationships.

In sum, the main research questions for this study were (i) what is the prevalence of psychiatric issues, ACE and self-sufficiency problems amongst the sample and (ii) is there an association between (more) ACE and self-sufficiency problems? Regarding the latter, it was expected that we would find a small but statistically significant positive association.

METHODS

The Amsterdam CVE program from which our client sample is drawn is a multi-agency case-based approach which aims to limit security risks and prevent criminal offenses related to right-wing, left-wing, single issue and Islamist extremism. Primary target groups are (potential) terrorists, returnees and their recruiters or people who (plan to) travel to conflict areas. These people can be reported to the municipality or the police. Reports can come from various sources, including civilians (e.g., family members), professionals and organizations such as schools or employers. Once a person is reported to the program a quick scan is completed by professionals with a law enforcement background using data from police- and security service files. The quick-scan looks at evident high-risk behaviors (such as expressions that imply that subjects are influenced by extremist networks), suspicious criminal behaviors (such as incitement to violence, intimidation) and previous convictions for terrorism-related offenses (preparatory acts, membership of terrorist organizations). In addition, the nature of the risks and underlying problems are analyzed in a risk profile. Based on the outcomes of the quick-scan and risk profile, cases may be included in the approach. Enrollment in the program is not voluntary, in a sense that agencies are going to exchange personal information about cases and draw plans of action regardless of whether an individual participates. As a consequence, upon inclusion, all cases are appointed to a case manager, who may be connected to organizations such as the municipality, police and probation office. He or she is responsible for designing the plan of action. Drawing from recent insights (14, 15, 42), this plan includes measures in the domain of both justice and health care. Still, it is possible that individuals are enrolled and choose not to cooperate. Strictly speaking, there are no legal consequences, unless (for example) non-cooperation implies violation of parole conditions.

Since the provision of health care is an important feature of the program, the municipality's public health service (PHS) helps to identify clients with possible (mental) health and self-sufficiency problems. The goal is to assess individual needs, in order to help inform the personal plan of action (8). For that purpose, the PHS undertakes a brief social-psychiatric screening. Nowadays, screenings are offered to every subject included in the program. While enrollment in the CVE program is not voluntary, the screening is. Results of similar screenings by the PHS in other, forensic-type, populations have been published elsewhere (43–45). Screenings are preferably done at the main office of the PHS, but some clients are screened at other places such as in their home or in prison. The screening is a semi-structured interview that takes around 90–120 min and is conducted by a psychiatrist (the 1st author of this study) and a psychologist. Afterwards, the results are discussed with representatives of health care providers in Amsterdam. Together, they come up with an appropriate plan of action, which may or may not include a medical referral.

Unfortunately, an elaborate psychiatric evaluation [i.e., with an analysis of all possible causes, course, and consequences for the interviewee (46)] is not feasible. This is due to the extensive list of topics that need addressing, combined with time constraints. The only structured questionnaire that is administered is a screening tool for mild to borderline intellectual disability (see the description of the measures below). The semi-structured interview is guided by a topic list and structured around the same essential life-domains that are included in the Dutch version of the Self-sufficiency Matrix (SSM-D) (41, 47). These themes

include (but are not limited to) physical and mental health, addiction, housing, income and social relations. See "measures" for more information on the SSM-D. The interviewer uses standard wording of the initial questions to be asked (e.g., "Do you have any physical symptoms/complaints? To what extent do physical symptoms impair the performance of your activities in daily life?"). If answers are positive and/or need more clarification, the interviewer continues with a freeform enquiry. The order in which topics are discussed and questions are asked is not fixed (semi-structured) and applied according to the course of the conversation with the subject. It is important to know that the PHS is not aware of the reason why people are referred to/included in the program, nor does the PHS know if or when an individual exits the program. This (judicial) information is not provided to the PHS, nor is it the purpose of the screening to measure it. Some subjects chose to disclose this information, however because of the self-report nature of the data used in this study we have decided not to include this information here. Hence, this judicial information is outside the scope of this study.

The semi-structured interview scheme includes a brief but systematic evaluation of psychiatric symptoms which are reported or observed at the time of the interview. Based on this evaluation a provisional working diagnosis is defined. In line with Dutch professional guidelines (48), symptoms were divided into: cognitive functions (e.g., consciousness, attention, and concentration), affective functions (e.g., mood and affect), conative functions (psychomotor activities, motivation and behavior) and a description of personality trades and symptoms.

The quality of the entire interview in general, and the psychiatric assessment in particular, is warranted by the involvement of a psychiatrist and requires continuous professional education and training. Besides that there is an involvement of representatives of external health care providers with whom the results are shared and discussed. They also compare the outcomes to information in their electronic files, provided that consent is given by the client. If the latter is the case (i.e., patient consents), than those health care providers are also asked to provide additional medical information. For example previous forensic psychiatric evaluations or psychiatric assessments.

People may enter and later exit the program. From December 2015 to May 2021, a total number of 109 individuals had been enrolled in the program, of whom 38 people have been screened. Only those who consented to the screening and who were an adult (i.e., 18 years and older) at the time of screening were included in the study sample ($N = 34$).

Measures

The primary outcome measure was a preliminary diagnosis for psychiatric morbidity. This was based on the working diagnoses, including differential diagnoses, categorized according to the main categories of DSM-IV (49) or DSM-V (50). A differential diagnosis was defined as one or more possible conditions or disorders that could be causing the symptoms in question. As such, differential diagnoses were applied when the presence of a disorder was suspected on the basis of its symptoms, but a more thorough assessment remained necessary to ascertain its presence.

A screening tool for mild to borderline intellectual disability (MBID), namely the Screener for Intelligence and Learning Disabilities (SCIL) (51) is the only validated screening tool used in the interview. It is included as a fast way to estimate a client's intellectual capacities, which may be helpful in the provision of adapted treatment in places or situations where this would not otherwise occur. The SCIL was developed as a tool to screen for MBID (i.e., IQ < 85) among forensic populations (52, 53). Administration time is $\sim$10 min and should be done by mental health professionals, although no specific training or education is required (51). The SCIL consists of 14 items (each scored with 0–2 points) in four domains: education, social contacts, school skills and language comprehension. This includes questions about education level and brief reading, writing and calculation tasks (53). The total score thus varies from 0 to 28 points. Previous studies have found good internal consistency and predictive accuracy (51, 53).

Presence of self-sufficiency problems (SSP) was measured using the Dutch version of the Self-Sufficiency Matrix (SSM-D). Self-sufficiency matrices were first developed in the U.S. (47). In 2010, the Self-Sufficiency Matrix was introduced in the Netherlands and developed as an observational screening tool that provides a reliable assessment of the degree of self-sufficiency in 11 essential life domains such as daytime activities, physical health, mental health, finances, domestic relations and daily life skills (41, 54). Each SSM-D domain is measured on a 5-point scale with 1 = "acute problems;" 2 = "not self-sufficient;" 3 = "barely self-sufficient;" 4 = "adequately self-sufficient;" and 5 = "completely self-sufficient". **Table 1** contains a brief description of each SSM-D domain. The SSM-D has adequate psychometric properties, including a solid single factor structure (i.e., self-sufficiency) and good internal consistency (Cronbach's alpha 0.85–0.89). In addition, Fassaert et al. (47) showed strong and statistically significant correlations between the SSM-D and well-known, extensively validated instruments like the Health of the Nation Outcome Scales (HoNOS) (55) and the Camberwell assessment of need short appraisal schedule (CANSAS) (56). Scores on each SSM-D domain were dichotomized (scores <3 vs. scores ≥ 3). Additionally, individual SSM-D scores were used to identify which proportion of the study population had severe (complex) self-sufficiency problems. This was done in two ways, namely by calculating (i) the number of people who had self-sufficiency problems in multiple domains and (ii) the number of people who had a combination of self-sufficiency problems that is typical for homeless people in Amsterdam. The latter was done similar to Fassaert et al. (43) and Buster et al. (57), who determined this based on scores <3 in the SSM-D domains of "Mental Health" or "Substances", combined with scores <3 in either "Finances," "Work and education," or "Housing".

Finally, we gathered information from the semi-structured interview on exposure to ACE. This was done in a similar way as Segeren et al., (44) who originally used items from the Juvenile Forensic Profile (FPJ) (58, 59) to score ACE in archived youth-care files. The FPJ consists of 70 items and was developed to measure criminogenic risk factors in patient files. For this study,

TABLE 1 | Description of SSM-D domains.

Domain	Description
Finances	Refers to the degree to which a person has at least sufficient income to cover their basic needs, that they obtain this income as independently as possible and that the income keeps pace with spending.
Work and education	Refers to being in paid work, being on a program to work (aimed at occupational participation or reintegration) or taking a course. When no paid work is being done, the activities being undertaken to find work are important.
Time use	Refers to the extent to which activities during the day are experienced as being pleasurable or useful by the person, the degree to which a person structures their day and the person's day-night rhythm.
Housing	Refers to the stability, quality and autonomy of the person's living conditions. The central question here is whether the person has a safe, adequate home where they can stay for an extended period
Domestic relations	Refers to the question of whether the person has good relationships with the people with whom he or she shares a household.
Mental health	Refers to the presence or absence of mental health problems and, if mental health problems are present, how the person copes with them.
Physical health	Refers to the presence or absence of a physical disorder and – if present – how the person copes with it.
Substance use	Refers to a person's use of drugs, gambling and use of alcohol and the effect it has on the person's day-to-day functioning.
Basic activities daily life (ADL)	Refers to the extent to which the person carries out and has carried out those activities that he or she needs to do to maintain their physical safety and welfare.
Instrumental ADL	Refers to carrying out activities—and the quality of their execution—which a person does to function safely and sustainably in their environment.
Social network	Refers to the number and quality of relationships with friends, family and acquaintances (who do not form part of the household).
Community participation	Refers to the degree to which the person participates in structured community activities and organizations.
Law and order	Refers to whether the person is currently (or has recently been) involved with the police and the law.

we selected the same items as Segeren et al. (44) used, namely the items that corresponded with the major ACE according to the CDC-Kaiser Permanente ACE Study (29). These are abuse, physical neglect, emotional neglect, sexual abuse, incarceration of a family member, household substance abuse, household mental health problems, household partner violence and loss of a parent. (See **Table 2**) for the scoring protocol. The FPJ does not distinguish between physical and emotional abuse, unlike the ACE construct most commonly used (60), so that one composite variable (i.e., Abuse) was scored. Occurrence of the ACE "Incarceration of a family member" was indicated in cases where one or more family members were convicted of a criminal offense. Emotional neglect was scored positively (yes) in cases where for example there was temporary/permanent separation from a parent or ignoring by/mental absence of a parent. Missing scores on all items were recoded to 0 (no). A cumulative ACE score was then calculated that ranged from 0 (no ACE exposure) to 9 (exposed to all ACE categories included in the study).

TABLE 2 | Scoring protocol for the presence of ACEs based on FPJ-items.

ACE	FPJ items	Score/ category
Abuse	Abuse by parents (FPJ)	Moderate/severe
	Abuse by others (FPJ)	
Physical neglect	Neglect (FPJ)	Moderate/severe
Emotional neglect	Unavailability of parents (FPJ)	Severe
Sexual abuse	Sexual abuse by parents (FPJ)	Moderate/severe
	Sexual abuse by others (FPJ)	
Incarceration family member	Criminal family members (FPJ)	Severe
Household substance abuse	Parental substance abuse (FPJ)	Moderate/severe
Household mental health problems	Parental mental health problems (FPJ)	Moderate/severe
Household partner violence	Domestic violence (FPJ)	Moderate/severe
Loss of a parent	Death of a parent	Yes
	Parental divorce (witnessed at age 4 or older)	Yes

Ethics Approval and Consent to Participate

All data are routinely collected and used for clinical practice. Subjects are not treated according to a particular study protocol and participation in the interview occurs on a voluntary basis. The Dutch law on Medical Research allows the use of this type of data for purposes of scientific research without an explicit informed consent, provided that the privacy of patients is fully ensured. The latter was achieved by the application of encoded patient numbers and reporting of results on adequately aggregated levels. As a result, the Medical Ethics Review Committee of the Academic Medical Center Amsterdam granted a "waiver of consent" for this study (W21_189 # 21.205), meaning that the Medical Research Involving Human Subjects Act (WMO) does not apply to this study.

Analysis

All analyses were done in SPSS version 21 (61). Descriptive analyses provided the sociodemographic information of the

TABLE 3 | Prevalence of possible psychiatric disorders in subjects ($N = 34$) included in a case-based approach of radicalization in Amsterdam (January 2015–present).

Psychiatric disorder categories[a]	Prevalence (%)
Psychotic	14.7
Mood/anxiety	29.4
PTSD	17.6
Hyperactivity/impulse control	5.9
Substance related[b]	35.3
Autism spectrum	11.8
Other axis 1[c]	23.5
Personality disorder	41.2
(Mild) intellectual disability[d]	29.4
Traumatic brain injury[e]	8.8

[a]*The working diagnosis consists of classifications made by (previous) mental health professionals and diagnoses from the screening. The table presents the prevalence including both previous and present classifications (higher bound number), even though some classifications have to be confirmed after referral.*
[b]*Mainly cannabis, alcohol, and cocaine.*
[c]*Includes attachment and/or identity disorders, sleeping disorders, dyslexia.*
[d]*Measured with the SCIL.*
[e]*Data available for N = 28.*

sample, and prevalence of psychiatric disorders, self-sufficiency problems and ACE, respectively. Finally, due to the limited sample size, the association between the total number of ACE (cumulative per person) and SSP (yes/no) was explored using only simple correlation coefficients (i.e., Spearman's rho).

RESULTS

In this sample of 34 subjects, 29 (85.3%) were male. Their mean age at time of screening was 27.6 years (sd. 5.5, range = 19–39). Most subjects ($N = 30$; 88.2%) were single, of whom five were either widowed or divorced. Thirty subjects (88.2%) had a migrant background, 22 of whom could be classified as a 2nd generation migrant. This means that they were born in the Netherlands but had at least one parent who was born abroad, in this case Morocco and Turkey. First generation migrants were born abroad themselves, namely in Morocco, Surinam, Turkey, Syria and Egypt.

Table 3 presents prevalence estimates in relation to psychiatric disease categories. Major psychiatric disease categories were mood and anxiety disorders and mild intellectual disability (each 29.4%), substance related disorders (35.3%), personality disorders (41.2%), and psychotic disorders (14.7%). In only four cases no indications for a mental health problem were found, while 23.5% of the sample had indications for a possible disorder in one category and 64.7% in at least two separate categories.

Table 4 presents on which life domains subjects experience self-sufficiency problems, in descending order. Self-sufficiency problems in work and education were most prevalent, which according to the SSM-D means that 47.1% of all subjects had no or inadequate income for basic needs *or* spontaneous or inappropriate spending, in combination with increasing financial debts. Second, 41.2% had problems in the domain of "Law and Order", suggesting contacts with police at least frequently (several times a year) *or* pending law cases. Problems in "Time use" indicated that 38.7% had no or very little pleasurable/useful activities, no or very little structure in day-to-day activities and/or an abnormal day/-night routine. Regarding "Community participation, 32.4% lived isolated from the community *or* caused some form of nuisance. In terms of "Social network", a similar proportion had no or very little contact with family, no or very few pro-social contacts and many/solely negative social contacts. Another 32.4% reported problems in "Instrumental ADL", which suggested one or more activities (e.g., cooking, medication management, taking care of administration, and other paperwork) were not carried out or there were limitations in several areas. Problems in this domain included signs of home pollution (e.g., a messy household) and under-/overmedication. "Mental health" was a problematic area in 29.4%, which suggested that there was an untreated (recurrent) mental illness present, as a consequence of which the person's functioning was severely impaired. Self-sufficiency problems in "Finances" were prevalent in 26.5%, which implicates inadequate income for basic needs *or* spontaneous or inappropriate spending and increasing debts. The same number of people reported problems in terms of "Housing", which pointed at housing that was not suited for permanent habitation, situations in which rent/mortgage payment was not affordable, imminent threat of eviction or even homelessness. Finally, "Substance use" was a problematic area for 23.5%, which suggested the presence of a substance abuse disorder (addiction) which caused/worsened physical/mental health problems, while treatment was typically absent. Only a few people reported self-sufficiency problems regarding "Basic ADL" (daily activities related to personal self-care like hygiene, clean clothing), "Domestic relations" and "Physical health".

Complex self-sufficiency problems, measured by the number of people who had self-sufficiency problems in 4+ domains, were found in 35.3%. Additionally, 32.4% had a combination of self-sufficiency problems that is typical for homeless people in Amsterdam. Taken together, only nine subjects (26.5%) were at least barely self-sufficient on all SSM-D domains.

Of the total sample, 70.6% reported at least one ACE. The most prevalent ACEs (**Table 5**) were emotional neglect (47.1%), household mental illness (44.1%) and loss of a parent (38.2%). Sexual abuse and physical neglect were mentioned least often. On average, subjects had been exposed to 2.1 different ACE types and 35.3% had been exposed to 4+ ACE (**Table 4**). Finally, there was a statistically significant positive association between the number of ACE and self-sufficiency problems (SSP, results not in table), however only with respect to two domains, namely "Mental Health" (rho = 0.51, $p = 0.002$) and "Law and order" (rho = 0.42, $p = 0.013$).

DISCUSSION

This study presents cross-sectional data on the occurrence of psychiatric disorders and additional self-sufficiency problems in a sample of Amsterdam citizens who are enrolled in a multi-agency case-based approach to address violent extremism and who are

TABLE 4 | Self-sufficiency problems[a] in subjects ($N = 34$) included in a case-based approach of radicalization in Amsterdam (January 2015–present).

Domain	Self-sufficiency problems (%)[b]	No self-sufficiency problems (%)[c]
Work and education	47.1	52.9
Law and order	41.2	58.8
Time use ($N = 31$)	38.7	61.3
Community participation	32.4	67.6
Social network	32.4	67.6
Instrumental ADL	32.4	67.6
Mental health	29.4	70.6
Finances	26.5	73.5
Housing	26.5	73.5
Substance use	23.5	76.5
Basic activities daily life (ADL)	5.9	94.1
Domestic relations	5.9	94.1
Physical health	0.0	100.0
Number of SSM-D domains with problems	%	
0	26.5	
1–3	38.2	
4+	35.3	
Severe (complex) self-sufficiency problems[d]	32.4	

[a]*Measured with the Dutch version of the Self-sufficiency Matrix (SSM-D) (21, 37).*
[b]*Acute problems, not self-sufficient (scores 1–2).*
[c]*Barely, adequately, or completely self-sufficient (scores 3–5).*
[d]*Based on scores <3 in the SSM-D domains of "Mental Health" or "Substances", combined with scores <3 in either "Finances," "Work and education," or "Housing" (33, 46).*

TABLE 5 | Prevalence estimates of distinct childhood adverse experiences and mean ACE score in subjects ($N = 34$) included in a case-based approach of radicalization in Amsterdam (January 2015–present).

ACEs	Prevalence (%)
Emotional neglect	47.1
Household mental illness	44.1
Loss of a parent	38.2
Household partner violence	23.5
Abuse	23.5
Incarceration family member	17.6
Household substance abuse	17.6
Sexual abuse	2.9
Physical neglect	0.0
Number of ACEs	**%**
0	29.4
1-3	35.3
4+	35.3
ACE mean (SD)	2.1 (2.0)

typically not convicted for extremist acts. Data were available for a small group of individuals, who were relatively young, predominantly male and single. Most of them had a migrant background, meaning that either they or (one of) their parents was born abroad, in countries such as Morocco, Turkey, Syria or Egypt. This profile is not very different from populations in other studies (3). It furthermore shows that psychiatric disorders are relatively frequently found in this group, which appears to be in line with previous findings in this field as well (10, 19, 21, 26). Compared to other research done in populations convicted of terrorist acts (10, 13) the percentages of mental disorders in our study are higher, especially for mild intellectual disability, personality and addiction disorders. For that matter, prevalence rates for psychiatric disorders appear to be more in line with research done in radicalized populations, in which percentages vary considerably between studies (28). Moreover, the sample presented with a considerable number of self-sufficiency problems on various life domains, with "Work and education" and "Social network" among some of the highest ranking problem areas, which is also consistent with previous findings on the complex needs of terrorist populations (10). Finally, ACE were generally highly prevalent and this is line with research on terrorist groups (10) and radicalized individuals and groups (28). In fact, in more than one third of this group (35.3%) we found indications for the presence of at least four ACE, which is a widely used cut-point to define "high risk" status for a myriad of adverse life outcomes (62).

A strength of this study is the availability of clinical data from a unique sample of radicalized individuals, since most empirical research has focused on subjects who were convicted of terrorism charges or who had been killed in the act of terrorism (13, 15, 20). So far only few studies based on psychiatric assessment of a radicalized population have been published (28). There are several reasons why health research in this area is difficult and why its results remain controversial, particularly regarding the prevalence of psychopathology (14, 15, 19, 20, 26). For example, violent extremism is a complex phenomenon with many different variables contributing to the process. In addition, there is a strong influence of the local political and societal context in which studies are conducted, which limits comparison across various types of extremism and across jurisdictions that can use different screening and risk assessment tools. Another strength of this study is the combination of clinical data on psychiatric morbidity with self-sufficiency problems and ACE, which together provides quite a broad perspective on the functioning of and complex needs within this specific population. To the best of our knowledge, this combination of information is relatively new and useful in thinking about developing individualized (treatment) interventions in CVE programs.

A number of limitations of the study should be considered as well. First, data were obtained from a screening procedure in a unique, but relatively small and specific sample, which raises questions about the generalizability of the results. Selection bias should be considered, for example because not all people included in the program were screened by the PHS. That is, nowadays the screening is offered to every subject in the

program, but in the early years of the program this used to be a decision of the individual case-manager. Also, people who successfully travel to conflict zones or plainly refuse to participate in screening can be argued to have less social and/or mental health problems. So the individuals who were not able to be screened, might have less psychopathology and self-sufficiency problems. However, in his study of 140 Dutch Islamist extremists–which also consisted of individuals who traveled to conflict zones- Weenink (26) found indications for psychological and social problems in 60% of the sample. An additional limitation is that this is a cross-sectional study, which contains purely descriptive results. Thus, it is impossible to address the issue of causal relationships between ACE, psychiatric symptoms, and self-sufficiency problems. Finally, it is important to note that the screening mainly results in self-report data. Fortunately, in some cases, subjects provide consent to retrieve additional medical information from previous forensic psychiatric evaluations or psychiatric assessments. Nevertheless, self-report data have limitations. For example, due to the lack of more extensive information about personal histories, it was difficult to determine ACE in this sample. As a result, we have probably been able to determine ACE less accurately. The same counts for judicial data; we did not have reliable information about the radicalized and criminal acts of the individuals, so we did not include this information in the current study. This is unfortunate, because although mental health problems are relatively common in these groups and are more easily identifiable in studies which rely on clinical examinations (10), the body of literature studying the nature of the link between mental illness and violent extremism and terrorism is less well developed and hampered by methodological limitations (14, 15). Recent studies have focused on the possible functional links between individual aspects of psychiatric disorders and violent extremism or terrorism in order to fill this gap. This information can be deducted by case or vignette studies and may be especially relevant in mental disorders like autism spectrum disorders, psychosis, PTSD and addictions (10, 31, 63, 64). Further research is needed to shed more light on the role of mental disorder in the complex, individualized, heterogenous pathways to radicalization and terrorism (10, 14, 40, 63). In the context of the screening for the CVE program, however, it is important to note that we actually do formulate individualized hypotheses on the association between the problem areas that are observed during the screening and the process of radicalization or violent behavior. If relevant, this hypothesis is then included in the referral to the mental health organization, so that it can be included in the forensic analysis that forms the base of a treatment intervention.

Self-sufficiency problems were frequently present. A considerable number of individuals appeared to be vulnerable in several ways. In fact, we found that 32.4% of CVE subjects had severe and complex problems to an extent that is comparable with homeless clients in Amsterdam (40). This finding is similar to a previous study by Fassaert et al. (43) in a population of offenders of serious violent crime, of whom 35.9% had complex self-sufficiency problems to an extent that was comparable to homeless people in Amsterdam. That particular study was done in the context of a diversion program for violent repeat offenders in Amsterdam (the "Top600" approach) (65) which, in terms of organization and interventions, is comparable to the Amsterdam CVE program. Thus, once included in the program for violent repeat offenders, individual offenders are screened in similar ways by the PHS as are individuals suspected of violent extremism. However, while both target populations hold similar proportions of vulnerable individuals, the problem areas slightly differ in terms of ranking. For example, Segeren et al. (44) found that 54.7% of violent offenders had self-sufficiency problems with respect to Finances, in contrast to 26.5% in the current study population. Finally, a striking result was that "mental health" was a problematic area in about one-third of the study population, which might be considered lower than expected based on the prevalence of suspected psychiatric disorders in the present study population (i.e., indications for a possible psychiatric disorder in ∼90% of the sample in the current study). However, it is important to bear in mind that, apart from the clinical assessment, the estimated prevalence of psychiatric disorders in the present study was also based on information from personal medical histories, whereas self-sufficiency is determined only on the basis of a person's current functioning. What is more, from the way the concept of self-sufficiency is applied in the SSM-D, it follows that a person with a disorder who receives some treatment or professional support is more self-sufficient than someone with the same medical condition who does not (adhere to) medical treatment. This is what distinguishes the SSM-D from instruments that solely focus on presence of symptoms or problems.

In more than one third of this group we found indications for presence of at least four ACE, which is often used as a red flag indicator for a high-risk status regarding a myriad of outcomes (62). What is more, there were some indications that occurrence of more ACE was associated with self-sufficiency problems, for example in relation to mental health. This finding concurs with the Segeren et al. study (44) among violent offenders and generally supports the notion that increased exposure to childhood trauma is associated with various negative outcomes in (young) adult life. Considering that the research exploring links between trauma and violent extremism is still in its infancy and the causal role of trauma in radicalization remains unclear (66–68), we believe the current results encourage further exploration of this topic.

As a result of the descriptive nature of this study and the small sample size, we cannot be sure if mental health, adverse child experiences and self-sufficiency problems are relevant to violent extremism. Still, we know for sure they exist in this sample, as they do in other groups in Amsterdam that come into contact with the police and judiciary system for so-called high impact crimes (43–45). Thus, we believe the results presented here highlight the importance of professionals in (mental) health and social care being actively involved in CVE initiatives. This is the best way to ensure that care is delivered to people with a complex need for care and thus it ensures a more integrated approach to violent extremism, in which a balance can be found between the objectives of community safety, case support and guidance (15). The measure of withdrawing a passport is illustrative of

the need to find such a balance. This is possibly effective from a safety perspective, as it limits the possibilities for the person in question to travel abroad. At the same time, however, it is a problematic intervention from a (public) health perspective, as it may further limit a person's possibilities and self-sufficiency (e.g., obstructive in obtaining a health insurance or getting a job). Of course, this is true for any involvement with the police and the law; if a person has a judicial case pending, this is likely to interfere with any ongoing care, housing program or community-based activities (54). In many cases, judicial procedures will first have to be closed before other pathways can be started. As we saw in the current study, as much as 41.2% had self-sufficiency problems in the domain of Law and Order, meaning they had past or current contact with the courts. In an integrated CVE approach like the one in Amsterdam, the different individual risk and (lack of) protective factors are weighed and a shared decision is made about which measures will probably contribute most to prevention of further radicalization or extremist behavior. Or, on the other hand, which measures may cause harm and in fact increase the risk of violent behavior.

Mental health professionals may play an important role in continually stressing the complex relation between mental health, psychopathology and radicalization or terrorism. They can prevent the framing of mental health problems in a stigmatizing manner by analyzing individual cases and help to clarify whether treatment and care of mental health and self-sufficiency problems might contribute to deradicalization or not (7). They can help identify cases in which psychopathology and vulnerability in a broader sense might be ruled out. Finally, mental health professionals can provide support to partners from law enforcement by explaining how disturbed behavior in individual cases may be triggered, and how to deal with it subsequently. For example, by explaining to law enforcement that clients with multiple and complex vulnerabilities such as described here, will sometimes struggle to comply and participate in case-based interventions given the deficits in self-sufficiency (3). Together, this may help prevent violent escalation when an individual is going to be approached by partners from law enforcement. In that sense a longitudinal multi-agency approach in which data from police and security services are combined with information from health care is most effective in dealing with a radicalized population with mental and social problems.

DATA AVAILABILITY STATEMENT

The datasets presented in this article are not readily available because the data contain highly confidential information. Requests to access the datasets should be directed to chgrimbergen@ggd.amsterdam.nl.

AUTHOR CONTRIBUTIONS

CG conceptualized/designed the study and gathered data from patient files. TF prepared the encoded data and conducted the data analysis. CG and TF contributed to designing the semi-structured interview and to writing the manuscript equally. Both authors have read and approved the final manuscript.

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Individual Differences in Personality Moderate the Effects of Perceived Group Deprivation on Violent Extremism: Evidence From a United Kingdom Nationally Representative Survey

Bettina Rottweiler and Paul Gill*

Security and Crime Science Department, University College London, London, United Kingdom

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Edited by:
Kees van den Bos,
Utrecht University, Netherlands

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Melanie Dawn Douglass,
York St John University,
United Kingdom
Beata Pastwa-Wojciechowska,
University of Gdańsk, Poland

****Correspondence:***
Bettina Rottweiler
bettina.rottweiler.16@ucl.ac.uk

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Numerous studies argue that perceived group deprivation is a risk factor for radicalization and violent extremism. Yet, the vast majority of individuals, who experience such circumstances do not become radicalized. By utilizing models with several interacting risk and protective factors, the present analysis specifies this relationship more concretely. In a large United Kingdom nationally representative survey (n = 1,500), we examine the effects of group-based relative deprivation on violent extremist attitudes and violent extremist intentions, and we test whether this relationship is contingent upon several individual differences in personality. The results show that stronger group-based injustices lead to increased support for and intentions to engage in violent extremism. However, some of the effects are much stronger for individuals who exhibit a stronger need for uniqueness and for status and who demonstrate higher levels of trait entitlement. Conversely, several effects are lessened for those individuals high in trait forgiveness, demonstrating a strong capacity for self-control and for those who are exerting critical as well as open-minded thinking styles, thus constituting buffering protective factors, which dampen the adverse effects of perceived group injustice on violent extremism. The results highlight the importance of considering (a) the interaction between individual dispositions and perceptions of contextual factors (b) the conditional and cumulative effects of various risk and protective factors and (c) the functional role of protective factors when risk factors are present. Collectively, these findings bring us one step closer to understanding who might be more vulnerable to violent extremism as well as how. Overall, the study suggests that preventing and countering violent extremism (P/CVE) programs must take account of the constellation of multiple factors that interact with (and sometimes enable or disable) one another and which can be targeted in preventions strategies.

Keywords: group-based relative deprivation, violent extremism, trait entitlement, need for status, need for uniqueness, trait forgiveness, self-control, critical thinking

INTRODUCTION

Preventing the onset of violent radicalization is a key policy priority. Such interventions often require risk assessments to prioritize cases and allocate management plans tailored to the individuals' needs. Risk assessment practice requires the best possible science yet the evidence behind several commonly used risk factors requires further work. This study focuses on one such factor: relative group deprivation. Several studies and conceptual models argue it is fundamental to how radicalization occurs (e.g., Borum, 2003; Moghaddam, 2005; McCauley and Moskalenko, 2008; Kruglanski et al., 2014) across different ideological contexts (Van den Bos, 2019; Kunst and Obaidi, 2020). However, the vast majority of individuals who experience such circumstances, do not become radicalized. Thus, other factors must concurrently be at play. The present study specifies these relationships more concretely and investigates whether the impact of relative deprivation on radicalization outcomes is contingent upon several individual differences in personality.

Relative group deprivation captures perceptions of injustice, discrimination and unfair treatment of one's group. The in-group is considered to have less than what they are rightfully entitled to and to be undeservingly worse off compared others (Smith et al., 2012; Van den Bos, 2018). Unlike objective deprivation, which captures more tangible indicators, such as poverty or low educational attainment, it is the subjective perception and related experience of deprivation in comparison to other groups which matter (Power, 2018). While objective deprivation may be present at the same time and likely influences subjective feelings of deprivation (Jetten et al., 2020), it needs to be perceived as unjust in order to evoke group-based emotions and behavioral intentions (Jetten et al., 2017). This is in line with a recent meta-analysis which found that different measures of objective deprivation (e.g., SES, unemployment, level of education, and income) are weak and often non-significant predictors for different cognitive and behavioral radicalization outcomes (Wolfowicz et al., 2020). Yet, small to medium sized effects emerged for group-based relative deprivation in predicting extremist attitudes and behavioral intentions (Ibid).

For decades, relative deprivation has been a prominent explanation why individuals engage in social and political protest behavior (for a meta-analytic review, see Smith et al., 2012). Research on collective action has provided an extensive empirical evidence base on the relationship between relative deprivation, including negative group-based emotions such as feelings of injustice and anger, strong group identification and engagement on behalf of a group to redress the perceived injustice (e.g., Simon and Klandermans, 2001; Walker and Smith, 2002; Van Zomeren et al., 2008; Abrams and Grant, 2012). Relatedly, research on violent extremism demonstrates that a crystallization of perceived injustices and feelings of discrimination may explain why individuals adopt extremist propensities and engage in extremist violence (Agnew, 2016).

For instance, large scale studies among German, Belgian and Dutch majority members highlight several direct and indirect effects between perceived injustices and relative deprivation and individuals' right-wing violent extremist attitudes, intentions (Doosje et al., 2012) and behavior (Boehnke et al., 1998). Doosje et al. (2013) found similar results among a sample of Dutch Muslim youth, whereby perceived injustices were associated with the adoption of a radical belief system and support for extremist violence. In addition, several structural equation models highlight that perceived group deprivation and injustices seem to trigger the onset of other risk factors associated with violent extremist intentions (Rottweiler et al., 2020), self-reported political violence (Pauwels et al., 2018) and self-reported right-wing extremist violence (Pauwels and Heylen, 2020). Further evidence on the relative deprivation and violent extremism link was provided by Obaidi et al. (2019). Across several studies, Obaidi et al.'s (2019) findings demonstrated that perceptions of group injustice are significantly related to different extremism outcomes among Western-born Muslims, thus rendering it a fundamental factor in understanding support for extremism. Additionally, perceived injustice demonstrated an indirect positive effect on violent intentions via group-based anger among Danish Muslims (Obaidi et al., 2018) and among Muslims living in Western countries as well as Muslims in Afghanistan and Pakistan (Obaidi et al., 2020).

Collectively, these results suggest that group-based relative deprivation and associated feelings of perceived injustice may predict increased support for and willingness to engage in violent extremism. However, it is important to emphasize that relative deprivation does not necessarily lead to radicalization. In fact, research shows that only some of those who experience such strains develop extremist beliefs (Kruglanski and Fishman, 2009; Sageman, 2014; Agnew, 2016; Rottweiler et al., 2020). To account for this, individual differences as potential moderators are worthy of consideration (e.g., Borum, 2014; McGregor et al., 2015). Individual differences in personality affect the way in which individuals react to environmental and situational stressors, rendering perceptions, behavioral intentions as well as actual behavior dependent on the interplay between these factors (e.g., Mondak, 2010; Gallego and Oberski, 2012).

While individual and contextual factors may independently influence individuals' risk of radicalization, their interactions may exert particularly strong effects (Ozer and Bertelsen, 2019). Such an emphasis on the dynamic interplay between individual differences and contextual factors within radicalization processes has become prominent within psychological theories of violent extremism (e.g., Doosje et al., 2016; Gøtzsche-Astrup, 2018). For instance, Gøtzsche-Astrup's (2019) survey studies found significant interactive effects between different personality traits and contextual factors, such as uncertainty, on violent extremist intentions. Ozer et al. (2020) showed that different aspects of one's social identity moderated the effects of insecure life attachment on different extremist measures. Similarly, Pavlović and Franc's (2021) results highlighted significant interaction effects among individual dispositions and perceptions of contextual factors. The findings demonstrated that dark personality traits moderate the effects of relative group deprivation on support for political violence and radical intentions. While Pavlović and Franc (2021) provide evidence for the conditional risk effects of subjective deprivation and Dark Tetrad traits, no interactive protective or buffering effects were studied. Yet, certain

individual differences may increase or conversely may dampen the adverse effects of contextual circumstances upon the endorsement of, and intentions to engage in, extremist violence. The impact of individual differences upon group-based relative deprivation and subsequent perceptions of injustice remains largely unexplored, however.

PRESENT STUDY

Overall, we still know very little about the interactional and contextual effects as well as the functional relevance of certain risk and protective factors for radicalization and violent extremism (Gill, 2015). Therefore, the present study begins to delineate some of these risk and protective factor relationships. We assess the relationship between group-based relative deprivation and support for as well as willingness to engage in extremist violence using a United Kingdom nationally representative sample (by age, gender, and ethnicity). The analyses examine whether this relationship is contingent on individual differences in personality. We expect to find significant person-contextual interactions. More specifically, we expect significant interactive effects between perceptions of contextual factors, such group-based relative deprivation and several individual differences on violent extremist attitudes and intentions.

This paper comprises of two sets of analyses stemming from the same dataset. Study 1A analyses risk × risk interactions and estimates whether the relationship between relative deprivation and violent extremist *attitudes* and violent extremist *intentions* is dependent on individuals' levels of needs for uniqueness and status as well as varying levels of trait entitlement. More specifically, we examine whether the identified risk factors will interact with each other, whereby particularly the co-occurrence of these factors is assumed to significantly increase the risk for violent extremist attitudes and intentions. Whereas Study 1A examines risk × risk interactions, Study 1B focuses on risk × protective interactions. Thus, the second set of analyses test whether the relationship between relative group deprivation and violent extremism is contingent on various protective factors being present. We examine whether potential protective factors, i.e., trait forgiveness, high levels of self-control as well as critical- and open-minded thinking styles may dampen or nullify the adverse effects of group deprivation on violent extremism. The following sections provide the rational for selecting the potential risk and protective factor moderators.

STUDY 1A

Need for Uniqueness

The need for uniqueness is a stable personality trait which denotes a need or desire to be different from others (Lynn and Snyder, 2002). People's need for uniqueness and their desire to be special have been described as fundamental human motives (Gebauer et al., 2014). This assumption aligns with the significance quest theory of radicalization (SQT; Kruglanski et al., 2014). SQT emphasizes the contribution to radicalization outcomes made by one's aim to achieve significance and uniqueness (Kruglanski and Webber, 2014). Endorsement of extremist ideologies and engagement in extremist groups have been argued to meet basic psychological needs (Jasko et al., 2017). Research suggests individuals adopt and accept extremist attitudes due to identity needs, pertaining to feelings of uniqueness, belonging as well as a need for certainty (Kenig, 2019). The adoption of particular beliefs is thought to fulfill such a need for uniqueness (Fromkin and Snyder, 1980). Thus, a strong need for uniqueness may be relevant for understanding individuals' attraction and involvement within fringe movements. In a similar way to why many individuals are drawn toward conspiracy theories (e.g., to fulfill certain psychological needs, such as feeling special and unique), the endorsement of extremist ideologies and engagement in extremist groups have been argued to meet these needs (Jasko et al., 2017; Sternisko et al., 2020). Hence, individuals who exhibit a strong motivation to be unique and different may be particularly prone to hold extremist beliefs and to engage in non-normative political action (Sternisko et al., 2020).

Need for Status

Empirical studies also suggest the need for status as a potential risk factor for engagement in violent extremism by increasing individuals' susceptibility and attraction to extremist groups. For instance, joining violent extremist groups and adopting extremist ideologies have been argued to offer individuals a sense of fulfillment and status (Sageman, 2011). Relatedly, status seeking has been described as a basic social-psychological factor fundamental to extremist radicalization and recruitment processes (Dandurand, 2015). The Extremism Risk Guidelines (ERG22+), which is a SPJ guidance for the risk assessment of violent extremists, lists the 'need for status' as a risk factor that may increase individuals' identification and engagement with an extremist ideology and/or group (Powis et al., 2019).

Frustrated status needs are one of the factors which draw mainly young men toward involvement within criminal gangs and extremist groups in order to restore or enhance social status and to attain self-esteem (Silke, 2008; Bartlett et al., 2010). Venhaus' (2010) report on over 2,000 interviews and histories of foreign fighters identifies status seeking as a way to achieve recognition and a key factor why young men join terrorist groups. Similarly, SQT highlights individual motivations driving radicalization processes, whereby personal significance, including a sense of recognition and status, represent fundamental human needs that can be achieved or restored by engaging in extreme behavior (Kruglanski et al., 2014). The need to achieve status and significance underlie the desire to matter and to be recognized (Webber et al., 2018). Thus, adopting an extremist ideology may meet individuals' need for existential meaning, by providing a clear purpose, such as achieving status and respect within groups (Horgan, 2008; MacDougall et al., 2018).

Trait Entitlement

Trait entitlement has varyingly been considered as either a sub-trait of narcissism (Miller et al., 2012) or a relatively independent construct. It refers to a stable personality characteristic that one is more deserving and entitled to more compared to other people

(Campbell et al., 2004). More specifically, it captures rigid beliefs relating to feelings of inflated deservingness, perceptions of being special and privileged, alongside exaggerated expectations and exploitative tendencies (Moeller et al., 2009; Grubbs and Exline, 2016). Trait entitlement influences individuals' attitudes, intentions and behaviors across situations. For instance, previous research confirms a significant relationship between entitlement and hostility, extreme aggression and violence perpetration (Ruiz et al., 2001; Reidy et al., 2008; Burt et al., 2012).

In addition, findings highlighted that narcissistic entitlement is the narcissistic sub-trait that most strongly predicts different measures of aggression (Reidy et al., 2008). In fact, entitlement and exploitativeness emerged as the only significant predictors of aggression when all narcissism sub-traits were entered simultaneously in the regression model, thus reflecting an extreme maladaptive trait of narcissism. Bushman et al. (1999, cited in Baumeister et al., 2000) found similar results among incarcerated violent offenders who demonstrated significantly increased levels of entitlement. Relatedly, inflated feelings of superiority and a strong sense of entitlement to special privileges constitute particularly relevant risk factors for aggression and violent behavior (Baumeister et al., 2000).

Furthermore, trait entitlement showed a positive relationship with different measures of aggression via feelings of perceived injustice (Archer and Thanzami, 2009). Unmet expectations violate entitled individuals' notions of deservingness. In the wake of such violated expectations, individuals high in entitlement are more likely to interpret the event as a perceived injustice (Grubbs and Exline, 2016). Like other maladaptive personality characteristics, trait entitlement can lead to increased and continual vulnerability due to constant unmet expectations as well as entitled interpretations and distressing reactions toward those, fostering perceptions of injustice and unfair treatment (Twenge and Campbell, 2003; Miller et al., 2009). Such a propensity for frequently violated expectations renders highly entitled people particularly prone to engage in anger rumination and revenge planning, which ultimately increases the risk toward violence to pursue 'justice' (Raskin and Novacek, 1991; Grubbs and Exline, 2016).

Hypotheses

First, based on findings from the literature review, we run several moderation analyses, which will be detailed in the following. We expect group-based relative deprivation to be significantly and positively related to support for and intentions to engage in extremist violence. In addition, we examine how several individual differences (e.g., trait entitlement, need for status, and need for uniqueness) can moderate the relationship between group-based relative deprivation and violent extremist attitudes and violent extremist intentions.

We expect that the relationship between group deprivation and violent extremist attitudes (H1) and violent extremist intentions (H2) will be moderated by uniqueness needs. More specifically, we expect that individuals with a strong disposition toward uniqueness and who hold stronger feelings of relative deprivation, will show the strongest support for and readiness to engage in extremist violence.

We further expect that the relationship between relative group deprivation and violent extremist attitudes (H3) and violent extremist intentions (H4) will be moderated by status needs. We expect that those individuals who score high in need for status and experience strong group injustice, will hold an increased risk of support for and readiness to engage in violent extremism. Individuals who hold perceptions of group deprivation may be more likely to engage in violent extremism when they additionally hold strong status needs. This may be due to the fact that people who experience injustice are unlikely to have their status needs fulfilled. Engagement in extremist groups and behavior may provide an opportunity to regain status and redress injustices.

Lastly, we expect that the effects of group-based relative deprivation on violent extremist attitudes (H5) and violent extremist intentions (H6) will be moderated by levels of entitlement.

Method

Participants

The data collection took place in July 2020. Participants were recruited via Prolific. Participants were based on a United Kingdom nationally representative sample (by age, gender, and ethnicity) n = 1,500. Overall, 51.3% (n = 769) identified as female, 48.7% (n = 730) identified as male and one individual indicated non-binary as their gender status (M_{age} = 44.92; SD_{age} = 15.91). The majority of participants (n = 1275; 85%) stated 'White' as their ethnicity. This was followed by 7.7% (n = 115) who stated 'Asian,' 3.7% (n = 55) identified as 'Black.' In total, 2% of respondents (n = 31) indicated 'Mixed' as well as 1.6% (n = 24) answered 'Other.' Education levels varied across participants: 2% had no formal qualifications, 17.8% of participants had GCSEs (or equivalent), 24.5% had A-levels/BTEC, 38% held an undergraduate degree, 13.8% held a Masters degree, and 2.9% of all participants completed a Ph.D.

Procedure

Participants were invited to participate in a study on risk and protective factors for violent extremism. After completing the consent form, participants were asked to fill out the questionnaire. Upon completion of the questionnaire, the respondents were thanked and debriefed. Participants received a small participation fee. After the data collection finished, the data was examined to ensure data quality and to check for any missing data. We further reviewed whether respondents had missed attention checks and we assessed the completion time for each participant. Participants were excluded from the data analysis if they missed more than two attention checks and when they completed the survey more than two standard deviations quicker than the average completion time.

Measures

Throughout both studies, all items were measured on 7-point scales from 1 (*strongly disagree*) to 7 (*strongly agree*). For all scales, the individual scale items were averaged into a score for each respondent, whereby higher values denoted: stronger support for violent extremism, a greater willingness to engage in violent

extremism, higher levels of perceived group deprivation, higher levels of trait entitlement, a stronger need for uniqueness, and a stronger need for status.

Violent Extremist Attitudes

The violent extremist attitudes scale is a four-item measure of generic support for violent extremism, which has been developed for the Zurich Project on the Social Development of Children and Youths (z-Proso), an ongoing prospective longitudinal study on the development of aggressive and other problem behavior (e.g., '*It's OK to support groups that use violence to fight injustices,*' '*It's sometimes necessary to use violence, commit attacks, or kidnap people to fight for a better world,*' ω = 0.88, Nivette et al., 2017).

Violent Extremist Intentions

We assessed individuals' violent extremist intentions with four items from the Radicalism Intention Scale (RIS), which is a validated and widely used scale to measure participants' willingness to engage in different illegal and violent behaviors on behalf of a group (e.g., '*I would participate in a public protest against oppression of my group even if I thought the protest might turn violent,*' '*I would attack police forces if I saw them beating members of my group,*' ω = 0.84; Moskalenko and McCauley, 2009).

Group Injustice

The present conceptualization of group-based relative deprivation entails a (1) cognitive component, such as thoughts that one's group receives less than one feels rightfully entitled to and is relatively disadvantaged over other groups and an (2) affective component, such as feelings of anger over this injustice (e.g., Smith and Pettigrew, 2015). Four items measured the construct of group-based deprivation, i.e., perceived injustice, discrimination and unfair treatment felt on behalf of the group the participant most strongly identified with (e.g., '*It makes me angry when I think of how my group is treated in comparison to other groups in the United Kingdom*' and '*If I compare the group to which I belong with other groups in the United Kingdom, I think we are treated unfairly*' (ω = 0.93). The items were originally developed for a Dutch survey measuring attitudes toward extremism conducted by Van den Bos et al. (2010) and have afterward been translated into English by Pauwels and De Waele (2014).

Trait Entitlement

We operationalized the psychological entitlement scale (PES) by Campbell et al. (2004) to capture individuals' inflated notions of deservingness and entitlement regarding the self (e.g., *'I honestly feel I'm just more deserving than others,' 'I feel entitled to more of everything,'*ω = 0.89). Across several studies, the PES has demonstrated good psychometric properties. It has shown to be a reliable and valid measure and to be stable across time (Ibid).

Need for Status

Dispositional need for status was assessed with the affiliation motivation scale, which measures individuals' desire to attain status, recognition, and respect from others (e.g., '*I mainly like to be around others who think I am an important, exciting person,*' *'I often have a strong desire to get people I am around to notice me and to appreciate what I am like,*' ω = 0.91, Hill, 1987).

Need for Uniqueness

The need for uniqueness was assessed with the 4-item Self-attributed Need for Uniqueness scale (SANU; Lynn and Snyder, 2002), which measures individuals' self-reported desire to be different from others (e.g., '*Being distinctive is important to me,*' '*I have a strong need for uniqueness,*' ω = 0.89).

Statistical Analysis

We ran a series of moderation analyses to examine the expected interactive effects of group deprivation and several individual differences in personality on violent extremism. We estimated all our interaction models in the software program R using the packages 'jtools' (Long, 2020a) and 'interactions' (Long, 2020b). We created average scores of our scales which were entered into the regression models. We calculated robust standard errors to apply a heteroskedasticity-consistent standard error estimator and to handle the violation of the normality assumption of our dependent variable (Zeileis et al., 2019). In addition, we applied a mean centering technique to all our continuous independent variables to yield interpretable coefficients (Aiken et al., 1991; Hayes, 2017). Probing and plotting of the interaction models were conducted in R with the function 'probe_interaction,' which combines the functions 'sim_slopes' and 'interaction_plot' (Long, 2020b). We controlled for age, gender, and more objective measures of deprivation, such as level of education and family income within all models due to the potential relationship with violent extremism (the analyses without the covariates yielded almost the same results). The models were run with 5,000 bootstrap samples and 95% bias corrected bootstrap confidence intervals as this method is robust to non-parametric data and statistical outliers and effectively handles deviations from the normal distribution of study variables as no assumptions about the shape of the sampling distribution are made (Preacher et al., 2007). We ran all moderation models with two different operationalizations of violent extremism, i.e., violent extremist *attitudes* and violent extremist *intentions* to increase the generalizability and validity of our study findings and thus, to increase the robustness of findings. This further allowed us to examine whether the effects differed depending on the operationalization of violent extremism (e.g., whether there are differences predicting violent extremist attitudes compared to violent extremist intentions).

RESULTS

The CFAs on all scale measures were run. All indicators showed satisfactory factor loadings with standardized coefficients ranging from β = 0.62 to β = 0.91. **Table 1** displays the correlations among all variables. All independent variables were positively and significantly correlated with violent extremist attitudes and violent extremist intentions.

To test our risk × risk hypotheses, we ran a series of moderation analyses, with group-based deprivation as the independent variable, need for uniqueness, need for status and trait entitlement as moderating variables, and violent

TABLE 1 | Descriptive statistics and correlations among variables of interest, Study 1A.

Variables	Correlations						
	M (*SD*)	1	2	3	4	5	
(1) Violent extremist attitudes	2.37 (1.38)	–					
(2) Violent extremist intentions	2.68 (1.29)	0.62***	–				
(3) Group deprivation	3.06 (1.49)	0.23***	0.30***	–			
(4) Need for uniqueness	3.84 (1.28)	0.16***	0.25***	0.17***	–		
(5) Need for status	2.83 (1.28)	0.18***	0.26***	0.18***	0.34***	–	
(6) Trait entitlement	2.58 (1.18)	0.13***	0.15***	0.36***	0.21***	0.06*	–

*Pearson's correlation coefficients are reported. n = 1,500. *p < 0.05 and ***p < 0.001.*

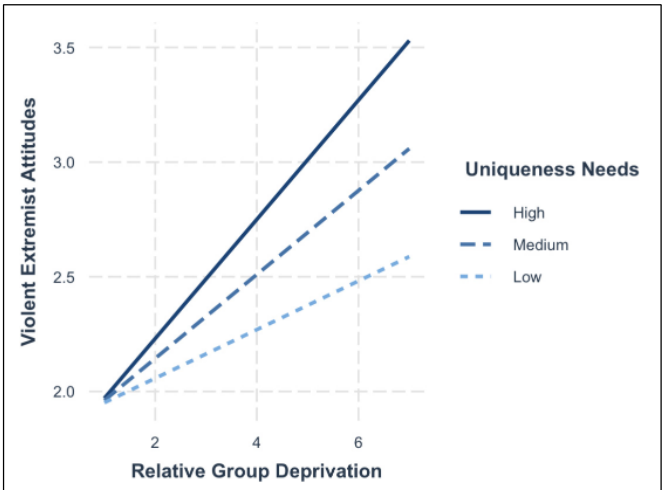

FIGURE 1 | Simple slopes for group deprivation and need for uniqueness on violent extremist attitudes.

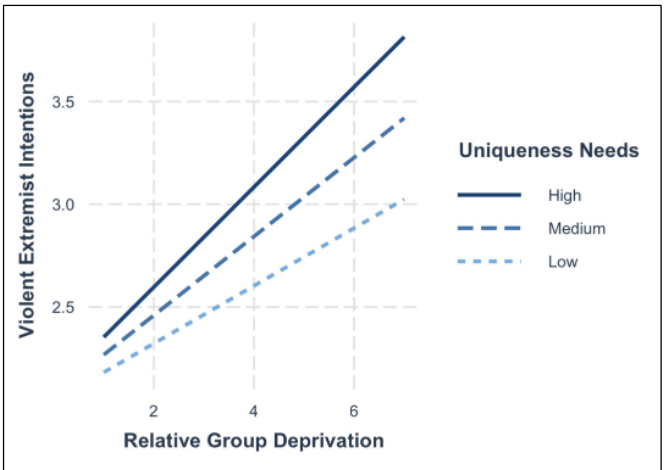

FIGURE 2 | Simple slopes for group deprivation and need for uniqueness on violent extremist intentions.

extremist attitudes and violent extremist intentions as the outcome variables.

The results from our first analysis confirm that group-based relative deprivation is positively associated with violent extremist attitudes (b = 0.21, 95% CI [0.17, 0.26]) and violent extremist intentions (b = 0.26, 95% CI [0.21, 0.30]). This finding indicates that individuals who hold stronger perceptions of group-based injustice hold higher levels of support for violent extremism and exhibit a stronger willingness to engage in violent extremism.

For the interaction analyses' first two models, the centered main effects showed that both relative group deprivation ($b_{\text{Attitudes}}$ = 0.19, 95% CI [0.15, 0.24]; $b_{\text{Intentions}}$ = 0.23, 95% CI [0.18, 0.27]) and need for uniqueness ($b_{\text{Attitudes}}$ = 0.14, 95% CI [0.08, 0.19]; $b_{\text{Intentions}}$ = 0.21, 95% CI [0.17, 0.26]) were positive and significant predictors of violent extremist attitudes and violent extremist intentions. In line with our predictions, need for uniqueness significantly moderated the effects of relative deprivation on violent extremist attitudes (H1; b = 0.06, 95% CI [0.03, 0.09]) and violent extremist intentions (H2; b = 0.04, 95% CI [0.01, 0.07]). These results confirm that the effects of group deprivation and both violent extremism outcomes are conditional on individuals' uniqueness needs.

To illustrate the significant interactions of relative deprivation and need for uniqueness, we computed simple slopes. The plotted values of the predictors represent one standard deviation above (+1 SD; high), at the mean (average) and one standard deviation below (−1 SD; low) the mean using the procedures outlined by Aiken et al. (1991). The probing of the conditional effects at different levels of the moderator shows that when perceptions of group deprivation are strong, high uniqueness needs exert strong positive effects on violent extremist attitudes (+1 SD; b = 0.26, 95% CI [0.20, 0.32]) (**Figure 1**). These effects are attenuated when the need for uniqueness is average (mean; b = 0.20, 95% CI [0.16, 0.25]) and further weakened when uniqueness needs are low (−1SD; b = 0.11, 95% CI [0.05, 0.18]).

Similar results emerged for violent extremist intentions, whereby the risk effects were strongest when in addition to high group deprivation, individuals also held a high disposition for uniqueness (+1 SD; b = 0.27, 95% CI [0.22, 0.32]). The effects are lower for average levels of uniqueness needs (mean; b = 0.23, 95% CI [0.19, 0.27]) and the lowest when the need for uniqueness was low (−1 SD; b = 0.17, 95% CI [0.12, 0.23]) (see **Figure 2**).

The findings from model 3 and model 4 revealed that when relative group deprivation ($b_{\text{Attitudes}}$ = 0.18, 95% CI [0.14, 0.23]; $b_{\text{Intentions}}$ = 0.22, 95% CI [0.18, 0.26]) and need for status ($b_{\text{Attitudes}}$ = 0.15, 95% CI [0.10, 0.21]; $b_{\text{Intentions}}$ = 0.21, 95% CI [0.16, 0.26]) were entered simultaneously into the regression, both showed a positive and significant association with violent extremist attitudes and violent extremist intentions. In addition, need for status had a significant moderating effect on the relationship between relative group deprivation and violent extremist attitudes (H3; b = 0.04, 95% CI [0.01, 0.07]). Yet, contrary to what we expected, need for status did not moderate the relationship between group deprivation and violent extremist intentions (H4; b = 0.03, 95% CI [−0.004, 0.05]).

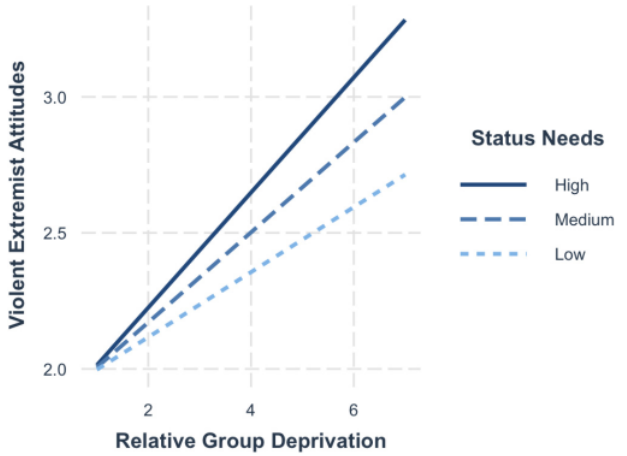

FIGURE 3 | Simple slopes for group deprivation and need for status on violent extremist attitudes.

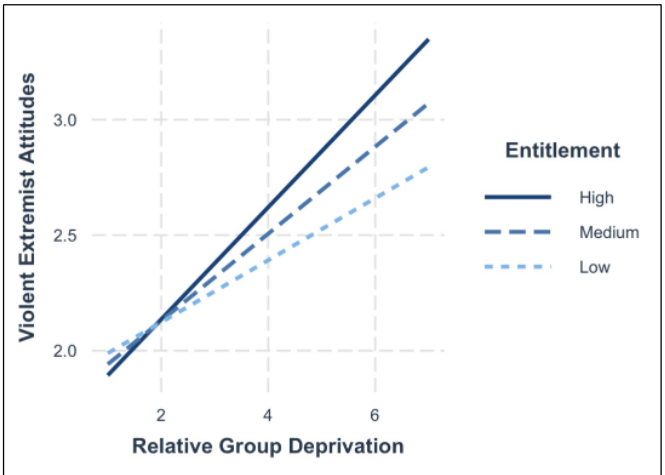

FIGURE 4 | Simple slopes for group deprivation and trait entitlement on violent extremist attitudes.

Simple slopes (**Figure 3**) illustrate that the effects of group deprivation on violent extremist attitudes are particularly strong among those high in status needs (+ 1SD; $b = 0.23$, 95% CI [0.17, 0.30]). The probing of the interaction reveals that the effects are lessened for those scoring average on the need for status (mean; $b = 0.18$, 95% CI [0.13, 0.22]) and lowest among those who exhibit low status needs (−1 SD; $b = 0.13$, 95% CI [0.07, 0.19]).

Model 5 showed that both group-based relative deprivation ($b_{\text{Attitudes}} = 0.20$, 95% CI [0.15, 0.25]) but not trait entitlement ($b_{\text{Attitudes}} = 0.05$, 95% CI [−0.01, 0.11]) significantly predicted violent extremist attitudes. The findings from model 6 found group deprivation ($b_{\text{Intentions}} = 0.24$, 95% CI [0.19, 0.28]) and trait entitlement ($b_{\text{Intentions}} = 0.06$, 95% CI [0.01, 0.12]) to be significant and positive predictors of violent extremist intentions when entered together into the regression equation. In line with our expectations, a significant interaction between group deprivation and trait entitlement emerged, whereby the relationship between group deprivation and violent extremist attitudes was moderated by trait entitlement (H5; $b = 0.05$, 95% CI [0.01, 0.08]).

The probing of the conditional effects showed that when trait entitlement is high, the effects of group deprivation are amplified (+1 SD; $b = 0.26$, 95% CI [0.19, 0.33]). The effects were dampened when levels of entitlement were average (mean; $b = 0.18$, 95% CI [0.13, 0.23]) and lowest when entitlement was low (−1 SD; $b = 0.14$, 95% CI [0.07, 0.20]) (**Figure 4**).

Contrary to what we expected, the interaction between group deprivation and trait entitlement proved to be non-significant for violent extremist intentions (H6; $b = 0.01$, 95% CI [−0.02, 0.04]). Thus, trait entitlement did not moderate the effects of group deprivation on violent extremist intentions.

STUDY 1B

Study 1B examines whether certain factors may exert protective factors against support for and intentions to engage in extremist violence for individuals who experience relative group deprivation.

Trait Forgiveness

Trait forgivingness denotes a disposition to forgive interpersonal transgressions over time and across situations (Berry et al., 2005). Relatedly, forgiveness has been described as the ability to let go of negative emotions, vengeful feelings and resentment related to a perceived transgression and describes a way of adaptive responding following suffering (Exline et al., 2003; McCullough et al., 2007). Forgiveness is further seen as a way to restore interpersonal and intergroup harmony after transgression (McCullough et al., 2000; Worthington, 2007). Various studies analyzed the correlates of trait forgiveness. For instance, trait forgivingness was negatively associated with chronic hostility, trait anger and vengeful rumination (Berry et al., 2001). It was further positively related to several traits linked to positive and pro-social affect, such as empathic concern and empathic perspective taking (Ibid) as well as agreeableness (Worthington and Wade, 1999). Conversely, unforgiveness has been described as a process whereby people hold on to negative emotions, bolstering a sense of victimhood (Wade and Worthington, 2005). This corresponds with the concept of revengefulness which denotes a tendency to insist on revenge and thus, relates to the inability to forgive perceived insults or harms (Wade et al., 2008).

Self-Control

Gottfredson and Hirschi (1990) argue that the ability to execute self-control is a key factor in explaining delinquency and the development of criminal propensities. Gottfredson and Hirschi originally conceptualized six dimensions of self-control: risk-taking behavior, immediate gratification, preference for simple tasks, volatile temper, impulsiveness, and self-centeredness. More recently, quantitative research extended this link to the explanation of violent extremism with a predominant focus on the aspect of thrill-seeking, risk-taking

and impulsivity (Grasmick et al., 1993; Pauwels and De Waele, 2014; Rottweiler and Gill, 2020). Survey studies corroborate that a poor ability to execute self-control is significantly correlated with exposure to extremist settings and self-reported violent extremist attitudes and behavior, irrespective of ideology (Pauwels and Hardyns, 2018; Rottweiler et al., 2020; Schumpe et al., 2020). Qualitative research analyzing right-wing extremist groups, also highlighted the importance of thrill-seeking and risk-taking as key determinants in explaining involvement in extremism and violence committed by far-right extremists (see for example Bjørgo, 2002; Bouhana et al., 2018; Lakhani and Hardie-Bick, 2020). These findings suggest that the receptivity to extremist ideologies is associated with poor self-regulation (Bouhana, 2019).

Critical Thinking

A prominent theme within the prevention of violent extremism is to strengthen resilience within individuals. One such preventative approach focusses on developing cognitive resources and to help individuals to become critical as well as flexible in their thinking. By developing and strengthening certain cognitive skills and capacities, individuals are thought to be better equipped to critically assess and question extremist propaganda which, in turn, increases resistance toward the attraction of such messages (Stephens et al., 2021). Yet, rather than focusing on the extremist messages themselves, the way individuals think and process information is seen as crucial for preventing extreme and simplistic categorizations, often labeled as black-and-white-thinking in which narratives such as 'us versus them' or 'good and evil' may become embedded (Liht and Savage, 2013). As such, a promising pathway for interventions is to increase cognitive complexity and to particularly strengthen critical thinking capabilities. Enhancing critical thinking may act as a protective factor against violent extremism by strengthening the ability to critically engage with information and messages as well as to critically assess and question the source and content of ideas, which ultimately may build resilience against the attraction of extremist ideas and groups (Davies, 2009; Mattsson and Säljö, 2018).

Hypotheses

The above accounts suggest that various protective factors may dampen the effects of risk factors for violent extremism. Based on research outlined in the literature review, we run several interaction models (see below). We examine how several individual differences (e.g., trait forgiveness, the ability to execute self-control, and critical thinking dispositions) may moderate the relationship between group-based relative deprivation and violent extremism.

We expect that trait forgiveness will moderate the effects of perceived group injustice on violent extremist attitudes (H1) and violent extremist intentions (H2), whereby higher levels of trait forgiveness will lessen the risk effects.

We expect that self-control will moderate the effects of perceived group injustice on violent extremist attitudes (H3) and violent extremist intentions (H4), whereby higher levels of self-control will lessen the risk effects.

We expect that critical thinking will moderate the effects of perceived group injustice on violent extremist attitudes (H5) and violent extremist intentions (H6), whereby higher levels of critical thinking will lessen the risk effects.

Method

Participants and Procedure

Participants were part of the same sample used in Study 1A and the same dataset was used to estimate the models in Study 1B. Data collection and cleaning procedures have already been outlined above.

Statistical Analysis

In Study 1B, we ran several interaction models to examine the expected interactive protective effects of group-based relative deprivation and several individual differences on violent extremism. The statistical procedures are the same as the ones detailed in Study 1. Like in the previous study, we controlled for age, gender, and more objective measures of deprivation, such as level of education and family income within all models (the analyses without the covariates yielded very similar results). As for Study 1A, the models were run with 5,000 bootstrap samples and 95% bias corrected bootstrap confidence intervals to account for the non-normal distribution of the outcome variables. We ran all moderation models with two different operationalizations of violent extremism (e.g., violent extremist *attitudes* and violent extremist *intentions*).

Measures

Violent extremist attitudes, violent extremist intentions and group-based deprivation are described in Study 1A. Like in the previous study, all items were measured on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The individual scale items were averaged to calculate a score for each participant, whereby higher scores indicated, e.g., higher levels of trait forgiveness, a higher self-reported critical thinking disposition and a strong ability to execute self-control.

Trait Forgiveness

The validated 10-item 'Trait Forgiveness Scale' (Berry et al., 2005) was operationalized. Trait forgiveness refers to the disposition to forgive interpersonal transgressions over time and across situations (e.g., '*I can usually forgive and forget an insult,*' '*I have always forgiven those who have hurt me,*' $\omega = 0.81$). The trait forgiveness scale demonstrated construct validity and empirical concurrent validity. The scale showed positive correlations with other validated dispositional forgiveness scales and was found to be negatively associated with trait anger, hostility, aggression, and vengeful rumination and was further positively correlated with agreeableness and empathy (Berry et al., 2005).

Self-Control

To assess participants' self-reported ability to exercise self-control, we measured a modified 7-item version of the self-control scale developed by Grasmick et al. (1993), which taps into the concepts of thrill-seeking, impulsivity and risk-taking (e.g., '*When I am really angry, other people better stay away from me,*'

'*Sometimes I find it exciting to do things that may be dangerous,*' ω = 0.84).

Critical Thinking Disposition Scale

Critical thinking was measured with the 'Critical Thinking Disposition Scale' (CTDS) (Sosu, 2013). The scale is comprised of two subscales, 'Critical Openness' and 'Reflective Skepticism' (e.g., '*It's important to understand other people's viewpoint on an issue,*' '*I often think about my actions to see whether I could improve them,*' ω = 0.85). The critical openness subscale describes individuals' tendencies to be actively open to new ideas, but also to be critical in evaluating those and further captures the disposition to modify one's thinking when faced with new and convincing evidence. The reflective skepticism subscale refers to the tendency to learn from past experiences and to question evidence before making decisions (Sosu, 2013).

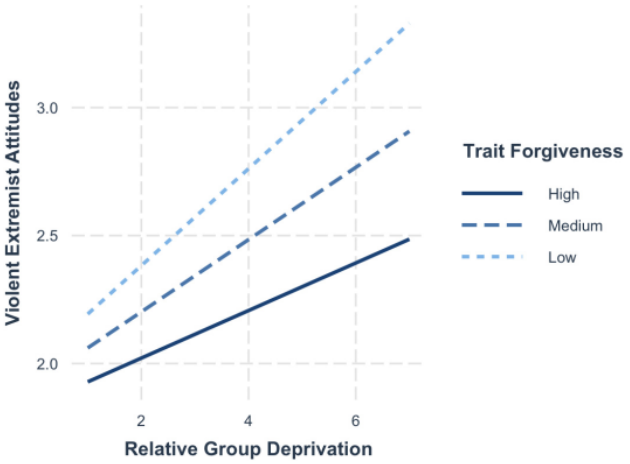

FIGURE 5 | Simple slopes for group deprivation and trait forgiveness on violent extremist attitudes.

RESULTS

The CFAs were conducted for all additional measures, which had not been operationalized in the previous study, i.e., trait forgiveness, self-control and critical thinking. All indicators showed satisfactory factor loadings with standardized coefficients ranging from β = 0.59 to β = 0.93. **Table 2** displays the correlations among all variables operationalized within Study 1B. Trait forgiveness, self- control and critical thinking showed significant positive correlations among each other, and they were negatively and significantly correlated with relative group deprivation, violent extremist attitudes and violent extremist intentions.

Within model 1 and model 2, the centered main effects demonstrated that group relative deprivation ($b_{Attitudes}$ = 0.17, 95% CI [0.13, 0.22]; $b_{Intentions}$ = 0.21, 95% CI [0.17, 0.26]) is a positive and trait forgiveness ($b_{Attitudes}$ = −0.23, 95% CI [−0.30, −0.16]; $b_{Intentions}$ = −0.25, 95% CI [−0.31, −0.18]) is a negative and significant predictor for violent extremist attitudes and violent extremist intentions. In line with our first prediction, trait entitlement significantly moderated the effects of relative deprivation on violent extremist attitudes (H1; *b* = −0.05, 95% CI [−0.09, −0.01]). Contrary to our second hypothesis, no evidence was found for the moderating effects of trait forgiveness on the relationship between group deprivation and violent extremist intentions (H2; *b* = −0.01, 95% CI [−0.05, 0.03]).

To illustrate the significant interactions of relative deprivation and trait forgiveness on violent extremist attitudes, we computed simple slopes (**Figure 5**). Like in the previous study, the plotted values of the predictors show the effects of one standard deviation above (+1 SD; high), at the mean (average) and one standard deviation below (−1 SD; low). The probing of the conditional effects at different levels of the moderator shows that for average (mean; *b* = 0.17, 95% CI [0.13, 0.22]) and particularly for high levels of forgiveness (+1 SD; *b* = 0.12, 95% CI [0.06, 0.19]), the risk effects of group deprivation are dampened compared to when forgiveness is low (−1 SD; *b* = 0.22, 95% CI [0.52, 1.00]).

The findings from model 3 and model 4 revealed that when group relative deprivation ($b_{Attitudes}$ = 0.17, 95% CI [0.12, 0.21]; $b_{Intentions}$ = 0.24, 95% CI [0.20, 0.29]) and self-control ($b_{Attitudes}$ = −0.33, 95% CI [−0.39, −0.27]; $b_{Intentions}$ = 0.07, 95% CI [−0.12, −0.02]) were entered simultaneously into the regression, both showed a positive and significant association with violent extremist attitudes and violent extremist intentions. In line with hypothesis 3 and 4, self-control had a significant moderating effect on the relationship between relative deprivation and violent extremist attitudes (H3;

TABLE 2 | Descriptive statistics and correlations among variables of interest, Study 1B.

Variables 2		Correlations					
	M (*SD*)	1	2	3	4	5	6
(1) Violent extremist attitudes	2.37 (1.38)	–					
(2) Violent extremist intentions	2.68 (1.29)	0.62***	–				
(3) Group deprivation	3.06 (1.49)	0.23***	0.30***	–			
(4) Trait forgiveness	4.57 (1.01)	−0.22***	−0.25***	−0.23***	–		
(5) Self-control	5.18 (1.41)	−0.30***	−0.34***	−0.20***	−0.42***	–	
(6) Critical thinking	5.46 (0.73)	−0.11***	−0.15***	−0.14***	−0.22***	−0.21***	–

*Pearson's correlation coefficients are reported. n = 1500. ***p < 0.001.*

b = −0.05, 95% CI [−0.08, −0.01]) as well as violent extremist intentions (H4; b = −0.04, 95% CI [−0.07, −0.01]).

Simple slopes (**Figure 6**) illustrate that the effects of group deprivation on violent extremist attitudes are lessened among those high in self-control (+1 SD; b = 0.11, 95% CI [0.05, 0.18]) compared to those with average self-control (mean; b = 0.16, 95% CI [0.12, 0.21]) and particularly compared to those with low self-control (−1 SD; b = 0.22, 95% CI [0.15, 0.28]).

Similar results emerged for the interactive effects on violent extremist intentions – for those with high self-control, strong perceptions of group deprivation still significantly increased the level of extremist intentions (+1 SD; b = 0.19, 95% CI [0.13, 0.26]). Yet, the effects were lessened compared to those individuals with average levels of self-control (mean; b = 0.24, 95% CI [0.20, 0.28]) and even weaker compared to those with low self-control (−1 SD; b = 0.29, 95% CI [0.23, 0.35]) (see **Figure 7**).

Model 5 showed that both group-based relative deprivation ($b_{\text{Attitudes}}$ = 0.21, 95% CI [0.17, 0.25]) and critical thinking ($b_{\text{Attitudes}}$ = −0.13, 95% CI [−0.21, −0.04]) significantly predicted violent extremist attitudes. The findings from model 6 found group deprivation ($b_{\text{Intentions}}$ = 0.24, 95% CI [0.20, 0.28]) and critical thinking ($b_{\text{Intentions}}$ = −0.17, 95% CI [−0.25, −0.09]) to be significant and positive predictors of violent extremist intentions when entered together into the regression equation.

Confirming hypothesis 5 and 6, a significant interaction between group deprivation and trait entitlement emerged, whereby the relationship between group deprivation and violent extremist attitudes (H5; b = −0.08, 95% CI [−0.13, −0.02]) and violent extremist intentions (H6; b = −0.05, 95% CI [−0.10, −0.004]) was moderated by trait entitlement. The simple slopes (**Figure 8**) highlight that when critical thinking is low (−1 SD; b = 0.27, 95% CI [0.20, 0.33]), the risk effects of group deprivation on violent extremist attitudes are strongest. The effects are lessened when levels of critical thinking are average (mean; b = 0.21, 95% CI [0.16, 0.25]) and lowest when critical thinking is high (+1 SD; b = 0.14, 95% CI [0.08, 0.21]).

The probing of the conditional effects showed that the effects were strongest when in addition to high group deprivation, individuals also held a low disposition for critical thinking (+1 SD; b = 0.21, 95% CI [0.16, 0.26]). The risk effects are attenuated for those scoring average on critical thinking (mean; b = 0.24, 95% CI [0.20, 0.28]) and are weakest among those who hold a strong disposition toward critical thinking (−1 SD; b = 0.28, 95% CI [0.22, 0.33]) (see **Figure 9**).

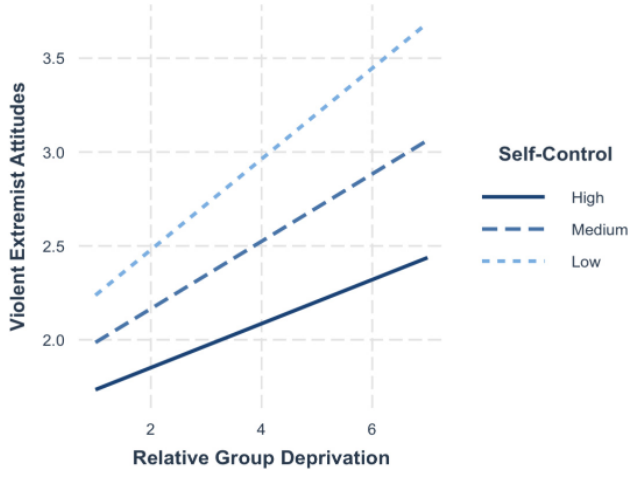

FIGURE 6 | Simple slopes for group deprivation and self-control on violent extremist attitudes.

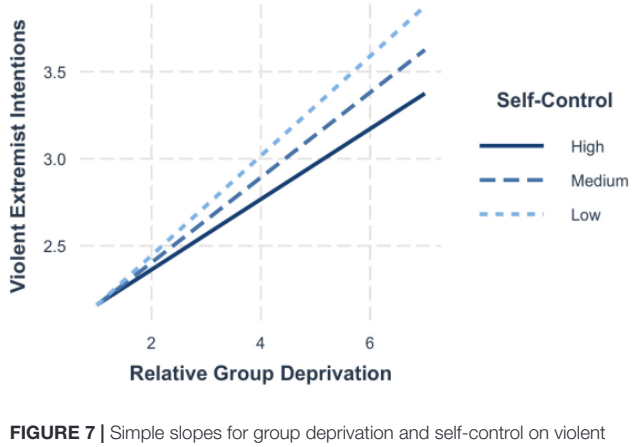

FIGURE 7 | Simple slopes for group deprivation and self-control on violent extremist intentions.

DISCUSSION

Our findings demonstrate that relative group deprivation predicts support for and willingness to engage in extremist violence, yet the relationship is contingent on individual differences in personality. More specifically, the results highlight various interactive effects between individual dispositions and perceptions of contextual factors, bringing us one step closer

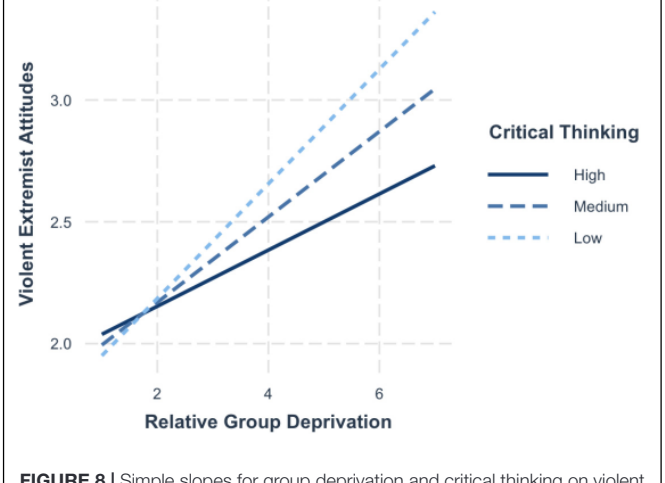

FIGURE 8 | Simple slopes for group deprivation and critical thinking on violent extremist attitudes.

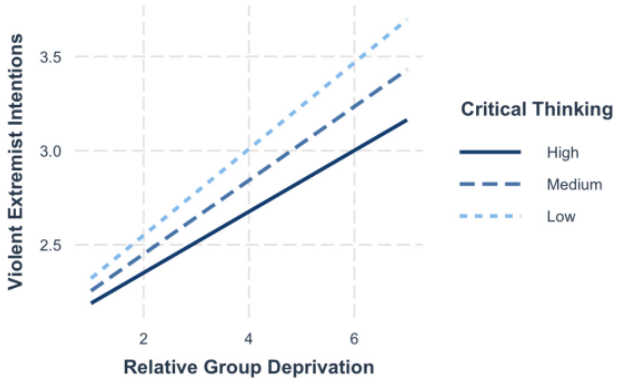

FIGURE 9 | Simple slopes for group deprivation and critical thinking on violent extremist intentions.

to understanding who might be more vulnerable to violent extremism as well as how.

The first set of results demonstrate that when the need for uniqueness is high, the effects of relative group deprivation on violent extremist attitudes and intentions are amplified. Similar results emerged for high status needs. The risk effects of group deprivation on support for and willingness to engage in violent extremism are strongest among those with high status needs. Thus, when uniqueness and status needs co-occur alongside perception of group deprivation, their joint influence is interactive. Individuals with high status and uniqueness needs may be particularly negatively affected by perceptions of group injustice and unfair treatment due to unmet needs for significance. Resultingly, the adoption of extremist beliefs and intentions may provide an opportunity to regain a sense of significance and to redress grievances. Therefore, it may be relevant to consider the interactive effects of status and uniqueness needs for individuals who hold strong feelings of group injustice.

Our findings further show that the effects of relative group deprivation on violent extremist attitudes are particularly strong for those individuals who also exhibit high entitlement beliefs. The effects are dampened among those with average and low levels of entitlement. Interestingly, while the interaction was significant, trait entitlement did not exert a significant main effect upon violent extremist attitudes. This indicates that instead of constituting an independent risk factor for violent extremist attitudes, entitlement seems to be only relevant in particular circumstances, for example it matters for people who experience feelings of group injustice. This is in line with previous research that found entitled people were more likely to engage in aggression against others when they experienced violated entitlement (Reidy et al., 2008). Hence, perceptions of relative group deprivation may have particularly strong effects on violent extremist beliefs among those who also hold high levels of entitlement. However, this relationship may also be spurious in that individuals may hold the view that they are deprived because of their high levels of entitlement. Therefore, their perceived injustice may simply be an entitled interpretation of unmet expectations, as individuals high in entitlement believe they have a right to those things and they also expect to receive those (Twenge and Campbell, 2003; Grubbs and Exline, 2016).

In contrast, no interactive effects between entitlement and group deprivation on violent extremist intentions were found. This is again not to say that entitlement and/or group deprivation do not matter. Both factors showed a significant positive effect on violent extremist intentions when entered simultaneously into the regression. Yet, rather than being interactive, their influence in cumulative. Within criminology that has been labeled a 'dose-response relationship' (Lösel and Bliesener, 2003), which indicates that adverse outcomes increase significantly as a function of accumulated risks. In such a case, more risk factors translate to more risk instead of the effects being contingent upon another. Overall, the results for the entitlement interactions confirmed that certain risk and protective factors are context-sensitive, meaning they exert differential effects within one context and as it was the case in our study, against one outcome, but may exert different effects under different conditions or for other outcomes.

Study 1B revealed several significant interactive protective effects. A buffering protective factor predicts a low probability of adverse effects of co-morbid risk factors (Rutter, 2012). For example, the effects of relative group deprivation on violent extremist attitudes and intentions were contingent upon individuals' levels of self-control. More specifically, higher levels of self-control dampened the adverse effects of group deprivation on both violent extremism measures. These results align with previous research which found that self-control may increase resilience by exerting buffering protective effects when certain risk factors for violent extremism are present (Rottweiler and Gill, 2020). Similar findings emerged for the interaction effects between critical thinking dispositions and support for and intentions to engage in violent extremism. With higher levels of critical thinking, the adverse effects of group deprivation on violent extremism were lessened. Therefore, critical thinking acts as an interactive protective factor when perceptions of group injustice are present.

Such findings highlight that more research analyzing cognition-emotion interactions is required to examine the underlying cognitive, affective and neuropsychological mechanisms. These mechanisms are suspected to link various risk factors, including cognitive rigidity, non-critical thinking styles and poor executive functioning, such as impulsivity and risk-taking (sensation-seeking) to susceptibility to extremism (Zmigrod et al., 2021). Validated cognitive tasks that assess cognitive flexibility, executive functioning and critical thinking abilities are required (Zmigrod et al., 2021). Importantly, cognitive factors, such as critical thinking skills and cognitive flexibility may effectively reduce cognitive rigidity and enhance executive functions (Zmigrod et al., 2019) and thereby, may act as direct or interactive protective factors against developing violent extremist propensities.

Furthermore, the results showed that higher levels of trait forgiveness can buffer against the adverse effects of relative group deprivation on violent extremist attitudes but not against extremist intentions. Yet, trait forgiveness demonstrated

a significant and negative main effect on violent extremist intentions, which indicates that the effects of trait entitlement and group deprivation are cumulative rather than interactive. Such an 'inverse dose–response relationship' may help to better understand the effects of direct protective factors, whereby the probability of adverse outcomes decreases as the number of protective factors increases (Lösel and Bender, 2003).

Limitations

The present studies come with several limitations. First, we employed a cross-sectional research design and hence, we cannot draw any causal conclusions. While these results provide important information toward establishing an empirical evidence base on risk and protective factors for violent extremism, they cannot provide knowledge on the developmental trajectories over time. Therefore, the present cross-sectional interaction analyses represent the intermediate stage between the identification of relevant risk factors and more costly longitudinal and experimental research designs. Thus, the current results should serve to inform the selection of risk and protective factors to be included in future longitudinal research (Kraemer et al., 1997). We also acknowledge the potential limitation of the dataset as both sets of analyses were conducted with the same dataset, which might have implications in terms of the robustness of the results and we cannot be certain whether we would be able to replicate our findings within other contexts. As such, we recommend that future studies test our hypotheses within further and diverse samples.

Second, prolific is an online platform and the participant pool is limited to those individuals who sign up to the platform. Hence the sample may not be truly representative of the general population in that it is subject to selection bias. Nevertheless, Prolific affords researchers access to more novel populations than the traditional subject pool of undergraduate psychology students, and as such facilitates greater generalizability.

Third, we acknowledge shortcomings related to the operationalization of vulnerability to violent extremism. We employ proxy measures to examine individuals' *attitudes* and *willingness* to engage in violent extremist behavior. Assessing vulnerability to radicalization is challenging, therefore attitudes as well as behavioral intentions rather than individuals' actual behaviors were measured. Research on attitude-behavior relations suggests that under appropriate conditions, intentions can be good predictors of actual behavior (Banaji and Heiphetz, 2010; Ajzen, 2012). Criminological studies have further provided empirical evidence to support the attitudes-behavior approach arguing that criminal attitudes and intentions can lead to criminal behaviors (Folk et al., 2018).

CONCLUSION

Radicalization processes and engagement in violent extremism are characterized by complex constellations of risk and protective factors (Lösel et al., 2020). This paper sought to analyze various risk-protective factor interactions for support for, and willingness to engage in, violent extremism. Our results highlight some initial empirical evidence for different interactive and cumulative effects between different risk and protective factors. We demonstrate that the effects of certain risk factors, such as relative group deprivation, are contingent on other risk and protective factors being present and thereby may lead to differential vulnerabilities to violent extremism. Importantly, the interactions between different risk and protective factors play a crucial role in predicting increased risk. Similar to other types of criminality and violence, the interactive effects of risk factors are most indicative (Lösel and Bender, 2017). Therefore, when multiple risk factors are present, rather than constituting a simple additive risk, their joint effect and interaction on the outcome variable need to be analyzed (Cicchetti et al., 1993). Therefore, future studies are required to examine the complex relationships and configurations of various risk factors which may amplify adverse effects as well as protective factors that may offset or dampen various risk effects.

Whilst our focus here was on violent extremism, potentially the same may also be true for other forms of violence and crime. The (dis)similarities between criminal and violent extremist behaviors, and those who engage in them, is certainly worthy of greater consideration. On the one hand, a recent systematic review and meta-analysis of radicalization risk factors found that the factors with the largest relative magnitude are those associated with central criminological theories (e.g., social learning, self-control, neutralization, and social control/social bonds) (Wolfowicz et al., 2020). On the other hand, some argue that violent extremism involves a different set of pro-social and affiliative motivations than common high-volume crimes (Taylor and Quayle, 1994; LaFree and Dugan, 2004; McCauley and Moskalenko, 2011).

Furthermore, our results demonstrate that to better understand why individuals are differentially vulnerable to violent extremism, it is important to shift away from the prevailing risk-oriented approach and to incorporate protective factors more strongly (Lösel et al., 2018), which may protect and/or buffer against radicalization and violent extremism. This may help us explain why people who have similar risk profiles display diverse behavioral outcomes (see Corner et al., 2019 for the concept of multifinality within violent extremism). Notably, this necessitates more research on both direct promotive and buffering protective factors when risk factors are present. Such research is key to better understand vulnerability to violent extremism and when designing successful prevention programs (Borum, 2014). Finally, from a practical perspective, it is key to acknowledge the interactive effects between risk and protective factors and to incorporate direct promotive as well as buffering protective factors more strongly in the design of intervention programs as well as in structured professional judgment risk assessment and management instruments (King et al., 2018).

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by UCL research ethics committee. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

BR and PG were responsible for the overall conceptualization and designed of this study. BR carried out the statistical analysis. PG secured funding for the study. Both authors were involved in writing the manuscript, revised further drafts of the manuscript, and read and approved the submitted version.

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Unfairness in Society and Over Time: Understanding Possible Radicalization of People Protesting on Matters of Climate Change

Amarins Jansma[1], Kees van den Bos[1,2] and Beatrice A. de Graaf[3]*

[1] Department of Psychology, Utrecht University, Utrecht, Netherlands, [2] School of Law, Utrecht University, Utrecht, Netherlands, [3] Department for History and Art History, Utrecht University, Utrecht, Netherlands

In this manuscript, we introduce a theoretical model of climate radicalization that integrates social psychological theories of perceived unfairness with historical insights on radicalization to contribute to the knowledge of individuals' processes of radicalization and non-radicalization in relation to climate change. We define climate radicalization as a process of growing willingness to pursue and/or support radical changes in society that are in conflict with or could pose a threat to the status quo or democratic legal order to reach climate goals. We describe how perceptions of unfairness can play a pivotal role in processes of climate change related radicalization. Without taking any position or judgment regarding climate concerns and associated actions, we suggest that although these behaviors drive many people to participate in peaceful climate protest, they may also lead others to radicalize into breaking the law to achieve their climate goals, possibly in violent ways. This process of climate radicalization, we argue, can be driven by people perceiving certain situations to be blatantly unfair. Specifically, we discuss how radical attitudes and behaviors can be products of perceived unfairness stemming from the past, the future, the immediate social environments of perceivers, as well as those that are spatially distant from them. We further argue that because radicalization processes are shaped by an interaction between individuals and movements, on the one hand, and societal actors and developments, on the other, they tend to develop in non-linear and dynamic ways. We therefore propose that climate radicalization is a (1) dynamic, contingent, and non-linear process, often of an escalating (and sometimes de-escalating) kind, (2) that develops over time, (3) through various interactions between individuals and their contexts, and (4) in which people and groups move back and forth from peaceful protest, through disobedient and unlawful methods, to violent actions. Implications, strengths, and limitations of our model are discussed.

Keywords: radicalization processes, unfairness, climate protest, social psychology, history, contexts

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The Chinese University of Hong Kong, Hong Kong SAR, China

****Correspondence:***
Amarins Jansma
a.jansma@uu.nl

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INTRODUCTION

Research suggests a link between people's perceptions of unfairness and their tendencies to think, feel, and act in radicalizing ways (Van den Bos, 2018, 2020). Following Finkel (2001), we define *perceived unfairness* as "the general feeling that something is not right." This is typically a very subjective but genuinely felt experience. When individuals notice that certain things are not

right (e.g., they feel disadvantaged compared to others or believe the government treats them in an unfair manner), this event can trigger strong feelings and emotions, such as anger, disbelief, and guilt (Barclay et al., 2005; Van den Bos, 2007; Palomäki et al., 2013). Perceived unfairness is often described as an alarming experience because experiencing unfairness threatens people's sense of who they are and jeopardizes their beliefs of what the world should look like (Van den Bos, 2015). Hence, a confrontation with unfairness may drive extreme thoughts and behaviors, such as rigid worldviews and the violent rejection of democratic principles and the rule of law (Van den Bos, 2018, 2020). This is especially the case when people feel personally uncertain (Van den Bos and Lind, 2009; Hogg et al., 2013) or when they have insufficient capacity to correct self-centered tendencies (Van den Bos and Bal, 2016; Van den Bos, 2018). Whereas extensive research addressed the role of other psychological drivers including social identity and group processes (see McCauley and Moskalenko, 2008; Doosje et al., 2016; Gøtzsche-Astrup et al., 2020), significance quest (see Jasko et al., 2017; Kruglanski et al., 2018), and need for sensation (see Bjørgo, 2011), we focus on unfairness-inspired radicalization processes.

Perceived unfairness has been associated with radicalization of people situated at both ends of the political spectrum (see Moors et al., 2009; Van den Bos et al., 2009; Doosje et al., 2012) and religious groups (see Doosje et al., 2013; De Graaf, 2021; De Graaf and Van den Bos, 2021) both in Western societies and beyond (see Kozloff, 2008; Githens-mazer, 2009; Botha, 2015). A global context in which people currently experience much unfairness is the climate crisis (Della Porta and Parks, 2014; Schlosberg and Collins, 2014; Thomas et al., 2019; Piispa and Kiilakoski, 2021). After all, climate change is linked to a wide range of injustices, from the loss of biodiversity, the extinction of species, to the increase in social inequalities and refugee flows (Intergovernmental Panel on Climate Change [IPCC], 2021). People who notice certain misconduct related to climate issues, may feel outraged about this and decide that immediate action is needed. They may engage in collective action, which refers to any action that individuals take on behalf of a collective organization with the goal of improving the conditions of their own group or another group (Wright et al., 1990). For example, when people find that they themselves, their own group, or other people who matter to them are being denied important goods or rights in society (such as security or public participation), participation in societal protests can become a solution to address this unfairness, a means of effecting social and political change (Folger, 1986; Wright et al., 1990). Participating in protests also benefits the individual, as it provides an opportunity to express grievances that arise from perceived injustice (Gurr, 1970; Berkowitz, 1972; Klandermans, 1997).

Initially, concerned citizens often start with peaceful and legal action to voice their concerns. However, over time some protesters, although clearly not all, may find themselves adhering to more and more radical thoughts, feelings, and behaviors (Van den Bos, 2018). Some may notice that they are not being heard by their governments and therefore decide that disobedient strategies are necessary to gain attention, or that peaceful methods do not bring about much-desired changes quickly enough and therefore consider violence to be a more effective tool. Following Van den Bos (2018), we define *climate radicalization* as "a process of growing willingness to pursue and/or support radical changes in society that are in conflict with or could pose a threat to the status quo or democratic legal order to reach climate goals" (see also Netherlands General Intelligence and Security Service, 2007). To date, it seems that most climate protesters in Western societies stay away from violent repertoires of action. Non-violence is an important value and tactic within the climate movement (de-escalation training is often provided to prevent violent outbursts) (Diprose et al., 2017; Extinction Rebellion, 2019; Bowman and Pickard, 2021). However, climate advocates in Western European countries recently engaged in more and more drastic actions: From locking oneself to fences, disrupting public transport, and blocking the press (BBC News, 2019; Iqbal, 2020), to occupying oil platforms and smashing bank windows to gain attention to climate issues (Carrell, 2019; BBC News, 2021).

In the present manuscript we propose a theoretical model of climate radicalization. **Figure 1** illustrates this model. Our conceptual analysis draws on psychological research on unfairness-inspired radicalization (Van den Bos, 2018, 2020), integrates the sociological concept of injustice frames (Goffman, 1974; Gamson, 1984; Benford and Snow, 2000), and historical case studies of radicalizing movements (Della Porta, 1995; Demant and De Graaf, 2010). Following Goffman (1974), we define the concept of *injustice frames* as "interpretative narratives that help people to perceive, identify and label unjust events within their life space and the world at large." These frames are generated and adopted by the people that evaluate injustice and may inspire and legitimize their protest activities (Gamson, 1984; Benford and Snow, 2000). Below, we first introduce our model and explain how it can help to understand individuals' possible radicalization trajectories regarding climate change. After this, we zoom out and address the unfolding of climate radicalization processes of people and groups over time, discussing the role of trigger factors and contingent interactions at the societal level. Finally, we provide comments and future directions concerning our theoretical model and argue for the value of integrating historical insights and concepts, like injustice frames, to the study of psychological radicalization.

PSYCHOLOGICAL PROCESSES OF CLIMATE RADICALIZATION: THE ROLE OF PERCEIVED UNFAIRNESS

Today, many people have great concerns about climate change. According to a survey among 1.2 million respondents from 50 countries, 64% of people worldwide believe climate change is an emergency (United Nations Development Programme, 2021). When such concerned individuals become aware of certain misconducts related to climate issues (like observing that the planet is being destroyed by humans), they may form the opinion that this is unfair and experience strong feelings of discomfort (see Van den Bos, 2003). Several types of unfair events can be

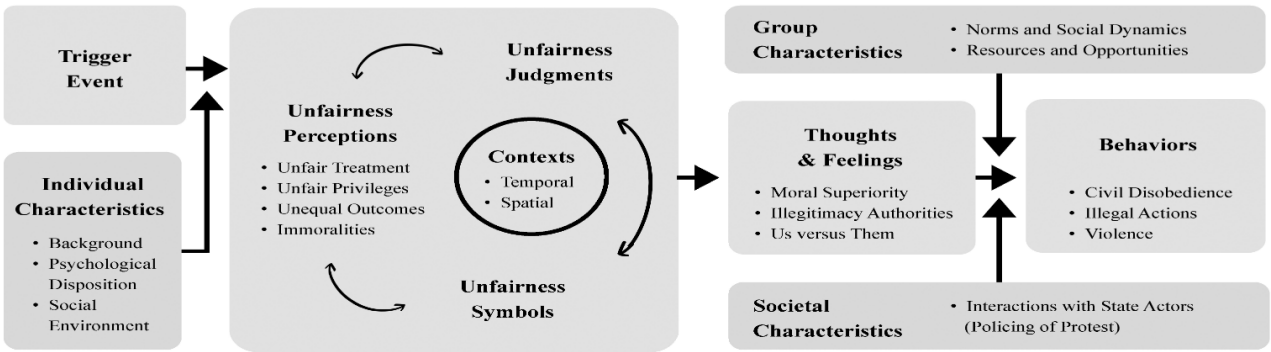


FIGURE 1 | Theoretical model of climate radicalization.

noted regarding climate change. This may involve inequality of outcomes (those who contribute least to climate change suffer its gravest consequences; Han and Ahn, 2020), instances of unfair treatment (not feeling heard by governments; Piispa and Kiilakoski, 2021), perceived unfair privileges (sustainable living is only for the wealthy; Haugestad et al., 2021), and immoral issues like overconsumption and capitalism (Martiskainen et al., 2020).

Individuals' background (demographics and life experience), psychological disposition (ideologies, religion, morality, needs, and concerns), and social and national environment (networks, culture, government), determine how they perceive an unfair situation (Van den Bos, 2018; Feddes et al., 2020; De Graaf, 2021). For example, young, female, and highly educated individuals tend to have greater levels of environmental concerns (Jones and Dunlap, 1992; Wahlström et al., 2019) and the same applies to citizens in wealthier or industrialized countries (Kemmelmeier, 2002; Marquart-Pyatt, 2012; Franzen and Vogl, 2013). Such differences in climate change perceptions can explain the different responses of individuals when confronted with climate unfairness. If a young person is very concerned about the climate, then reading the latest IPCC report and seeing that the government is doing nothing in response, will lead quickly to the perception that this is something unfair. Notwithstanding individual differences, a confrontation with unfairness is by many experienced as an alarming event that brings about discomforting feelings and confusion (Van den Bos, 2018).

Judgments of Unfairness

To understand this alarming experience, people will start looking for meaning since humans have a natural tendency to make sense of what happens to them (Becker, 1971; Heine et al., 2006; Van den Bos and Lind, 2009; Van den Bos and De Graaf, 2020). While interpreting unfairness they will cognitively evaluate important sources in their surroundings, including their interactions with other people in society. Does the state listen to what they have to say with due respect? Are people treated fairly by the police during protests? The experience that someone has treated you in an unfair and unjust way is central to unfairness perceptions (Finkel, 2001; Van den Bos, 2015) and may drive societal protest and the adoption of violent tactics (Klandermans, 1997; Van Stekelenburg and Klandermans, 2013). When protesters are denied the right to demonstrate, are treated differently from other protest groups, or are violently detained, this can fuel a new wave of more hardened or heated forms of protests. Specifically, when people are treated in unfair manners by important people, such as police officers, judges, and politicians, individuals may also begin to distance themselves psychologically from those individuals or institutions conducting the unfair treatment, leading to exclusion from society (Lind and Tyler, 1988; Tyler and Lind, 1992). Thus, through psychological processes of appraisal, people may come to the judgment that something is unfair, which can have far-reaching consequences (both for the individual and for society).

People often make judgments that something is unfair based on specific events or occurrences that are of symbolic value to them. Indeed, in line with theories of symbolic interactionism (Blumer, 1986), specific governmental actions by societal authorities can be important symbols of inhumane conduct for climate protesters. For example, a speech in which a head of state proclaims that climate change is not so bad may lead protesters to conclude that an important authority does not take climate issues seriously and evoke a sense of unfairness. This speech can then become of symbolic value signaling that the way the state treats them is blatantly unfair. Research has shown that such symbols of unfairness can take different forms and include different stimuli such as stickers, posters, and photographs (see Nikolayenko, 2007). Furthermore, these symbols often have to do with historical stories and events (see Githens-Mazer, 2008), or specific actions (or lack thereof) by particular individuals, groups, or institutions (Van den Bos, 2018).

Moreover, when people are constructing fairness judgments, interpreting the event in terms of plausible causes and consequences helps them to make sense of the situation at hand (Benford and Snow, 2000; Della Porta and Parks, 2014). For example, after reading the latest IPCC report and observing large-scale climate impact is being caused by human actions, people may conclude that powerful governments are not fulfilling their societal duties, signing climate agreements but failing to act accordingly, thus endangering the safety of citizens. Protesters may infer that governments are the ones to blame. According to social contract theories (Rousseau, 2004, 2014), people who infer that their government is failing to live up to it commitments may believe that it is justified to withdraw from their own civic duties

or, in some cases, that it is the right thing to stop obeying the law and instead take action into their own hands.

Framing Unfairness and Mobilizing for Change

In our model, unfairness *symbols* refer to salient instances that signal unfairness to individuals perceiving the unfairness and may serve as the basis for their perceptions of unfairness as well as a starting point for protest and processes of radicalization (Van den Bos, 2018, 2020). Through symbols of unfairness people identify solution strategies that guide them in how to respond to the experienced unfairness and act accordingly (Benford and Snow, 2000; Della Porta and Parks, 2014). One way to respond to perceived climate unfairness–at least for individuals living in democratic and open societies–is to demand change through collective forms of action (Wright et al., 1990).

Recent research suggests that perceptions of unfairness are indeed key to collective climate protest (see Della Porta and Parks, 2014; Schlosberg and Collins, 2014; Thomas et al., 2019; Piispa and Kiilakoski, 2021). Notably, in addition to perceived unfairness, there are other social psychological factors that drive people to protest [for an overview see Van Zomeren and Iyer (2009) and Van Stekelenburg and Klandermans (2013), for an integration see Van Zomeren et al. (2008, 2012)]. For example, individuals' motivation to take climate action can be determined by their level of identification with climate groups (Fritsche et al., 2018; Haugestad et al., 2021), feelings of urgency and responsibility (Basta, 2020; De Moor et al., 2020, 2021) emotional experiences such as anger, fear, guilt, and hope (Kleres and Wettergren, 2017; Martiskainen et al., 2020), and instrumental reasons such as efficacy judgments (Roser-Renouf et al., 2014; Van Zomeren et al., 2019; Wahlström et al., 2019). Yet, in order to map out possible climate radicalization processes, a focus on perceptions of unfairness is particularly important, as perceived unfairness is not only a potential driver of climate protest, but may also drive individuals to break the law and engage in violent behavior.

When individuals use unfairness symbols to understand a certain unfair event, a process of *unfairness framing* takes place, which facilitates what they think, feel, and how they act (Goffman, 1974; Gamson, 1984; Benford and Snow, 2000). An empirical illustration of a unfairness framing is provided by Čapek (1993), who examined a case of environmental contamination in the Carver Terrace community in America (a neighborhood of Texarkana, Texas). The Carver Terrace site was previously used as a waste site for toxic chemical disposal and then became a building ground for residential houses. After several years its new residents came to experience severe health problems. Many other residents were initially unaware of this contamination only until they read about it in the newspaper or were informed by a local environmental organization. According to Čapek, these residents gradually became more aware of the dangerous situation that involved many injustices, including "the poisoning of the land, the neglectful behavior of city and federal authorities, the illnesses and deaths, and the years of hard work lost when property values dropped." Čapek (1993) Feeling hopeless and distrustful of the conflicting reports presented by outside agencies, a group of residents became more active in protesting to demand justice, eventually ensuring a federal buyout and relocation. Using qualitative in-depth interviews with local residents and other stakeholders, Čapek described how an "environmental justice frame" emerged in this local community as a result of the struggles the residents experienced and how their ability to mobilize for social change was closely tied to picking up this frame.

Perceived unfairness can certainly motivate people to protest peacefully. Furthermore, neutral symbols of information can be important in processes for de-radicalization (see Demant and De Graaf, 2010). In this manuscript, however, we focus on the role of unfairness perceptions leading to possible radicalization into violence. To understand this issue thoroughly, we describe in what follows how unfairness judgments play a role in radicalization processes in different contexts.

The Temporal Context

Since radical attitudes and behaviors are products of complex interactions between individuals and various changing contexts (Gergen, 1973; Della Porta, 2018; Power and Velez, 2020, 2021; Van den Bos and De Graaf, 2020), it is important to consider that processes of radicalization do not arise and develop in a vacuum, and are only confined to the present. A radicalizing person or movement often has a past history of experiences with unfairness about which they have been indirectly informed through constructed narratives (Van den Bos and De Graaf, 2020). Within groups stories about past unfairness may circulate because they are constantly retold over time.

When people identify with groups that have been wronged in the past, this may be a powerful drive for protest. According to social identity theory (Tajfel and Turner, 1979; Hogg, 2018), this is because when an individual identifies with a group, this is accompanied by a consciousness of similarity, and experiencing shared emotions and fate. It means that a person feels a sense of belonging to a particular group which makes a person more willing to act on behalf of that group (Van Zomeren et al., 2008). Moreover, group identification also explains why protesters may experience negative affect when the group fails (sadness, humiliation), feel positive affect when the group succeeds (happiness, pride), and may experience anger and resentment when faced with a common enemy (McCauley and Moskalenko, 2008). People in the present can retrieve meaning from past instances of unfairness and use them to interpret and react on contemporary experiences with unfairness, possibly in radicalizing ways. Githens-Mazer (2008), for example, shows how injustices that were experienced during the Algerian war in the 1950s and 1960s led to the radicalization of North African Muslims living in Britain several decades later. This is because the stories about past injustices–that were disseminated through symbols, memories, and myths–communicated a history (a series of injustice frames) in which past unfairness against their social group were recognized.

Looking at the climate context of the last decade, past injustices that protesters face may involve specific cases in which they or their group members were wronged, such as violent

confrontations with the police (see Baker, 2010; Wahlström, 2011; Diprose et al., 2017; De Moor, 2018). Moreover, we expect protesters' perceptions to be affected by the occurrence of alleged immoral developments through time, such as national governments' alleged awareness of the harmful effects of their actions on the planet and its inhabitants (like their role in the fossil industry) already since the 1990s (from then on the IPCC reports were repeatedly published), and their continued denial and evasion of scientists' warnings (Jäger and Riordan, 1996; Bolin, 2007; Ferns and Amaeshi, 2021).

Importantly, narratives about unfairness in time can focus on the past, but can also point to the future. Expectations of a fair world in the distant future are associated with support and justification for the use of violence in the here and now. By analyzing the speeches of 22 leaders of violent revolutions in the last century, Martin et al. (1990) showed that leaders' visioning a just future was an important part of the narrative used to legitimize the group's violence in addressing experienced injustices in the present. Thus, people's predictions of future unfairness and fairness are pertinent to contemporary perceptions of unfairness and support for revolutionary ideas and violent tactics.

When people stand up against an unfair issue in society such as climate change, they often do so with the goal of reducing or removing that unfairness either in the short run (mitigating ecological disasters already present in the global south) or for the longer haul, that is in the distant future (preventing the prospect of an unhabitable earth). A recent study among Norwegian climate activists (Haugestad et al., 2021), found that a common sentiment and unfairness narrative of young protesters was that they felt they had been cheated of a promised future. The authors explain this experience by pointing to temporal comparisons that young people can make in which the imagination of future consequences of climate change creates feelings of unfairness and frustration, and this legitimizes them to engage in protests (see also Power, 2020). Such stories of future unfairness are rooted in the present, and shape protesters' contemporary perceptions of unfairness.

Perceptions of climate unfairness are also reflected in notions of intergenerational injustices, the notion that future generations will be left with the climate problems caused by previous generations (Han and Ahn, 2020; Holmberg and Alvinius, 2020). This temporal aspect is important to consider because perceived intergenerational unfairness likely affects the radicalization of different generations differently. The injustice experienced by older generations could be particularly driven by feelings of collective guilt and responsibility, and that of younger generations by fear and hopelessness. Han and Ahn (2020) analyzed the narratives of global youth climate activists and found that younger generations perceive themselves as the victims of climate change and older generations as the villains. In an interview study comparing climate activism in the United Kingdom, Canada, Unites States, and Norway, Martiskainen et al. (2020) found that mothers were motivated to strike for the climate due to altruistic values (on behalf of their children), and young adults because of egoistic values (preserving their own future).

The Spatial Context

Unfairness judgments are affected by temporal and social comparisons. People often compare their own individual or group situation with what happened in earlier circumstances or with what other individuals or groups receive (Van den Bos et al., 1998). According to theories of relative deprivation (Runciman, 1966; Folger, 1986), feelings of deprivation and frustration arise when social comparisons lead people to conclude that they or their own group are disadvantaged compared to other individuals or groups (such as when a woman receives less pay for the same job compared to a man), are deprived of important rights in society (for example, when the right to demonstrate of some groups is restricted), or receive different treatment (such as when some citizens are more likely to be singled out by law enforcement). For example, when climate protesters observe that their group is violently arrested during protests while other protest groups are escorted by police, this may be judged as something unjust. Perceived relative deprivation can then drive people to participate in social protest (Klandermans, 1997; Power, 2018; Grasso et al., 2019), and move them toward political violence and radicalization (Gurr, 1970; Van den Bos et al., 2009).

Because the impact of climate change is unevenly distributed on a global scale, protesters in Western societies could also derive meaning from unfair experiences of distant others (individuals and groups outside their own social environment, both near and far in geographical space). The idea that people and groups least responsible for climate issues suffer the most severe consequences, despite not being responsible for causing for climate issues, is an important driving force for climate protesters (Han and Ahn, 2020). As such, protesters notice relative deprivation between social groups (the disproportionate burden of environmental hazards placed on less privileged people in terms of socio-economic status, Rainey and Johnson, 2009) and continents (the global South will be first to suffer the burden of climate change, Bond et al., 2020; Piispa and Kiilakoski, 2021). Therefore, social injustices and intercontinental injustices shape protesters' judgments of unfairness.

Furthermore, the spatial context in which individuals live, both socioeconomically and geographically, affects how they perceive and address the unfairness they perceive. Rather than finding themselves disadvantaged, people protesting in Western societies likely perceive unfair group advantages (see also the literature on relative gratification, Schmitt et al., 2000; Guimond and Dambrun, 2002). For example, an awareness of having privileges in terms of money, knowledge, and safety gained from harmful societal systems (capitalist societies contribute to the climate crisis), may induce feelings of responsibility and guilt for climate change (Wohl et al., 2006; Kleres and Wettergren, 2017). Perceived in-group advantage can then motivate individuals in democratic societies to address unfairness through political action (Iyer et al., 2003; Leach et al., 2006).

Feeling responsible for causing or solving climate issues could motivate individuals in Western societies to come to the aid of marginalized fellow citizens or distant communities living on the other side of the globe. This is especially true for individuals who experience a collective ethic of care and hold

strong moral principles such as concern for "the underdog" (Skitka, 2010; Van den Bos, 2018; Bond et al., 2020). Research shows that moral convictions (i.e., strong and absolute beliefs that something is morally right or wrong, Skitka and Mullen, 2002) drive collective action (Van Zomeren et al., 2012; Barth et al., 2015). Notwithstanding the importance of individuals standing up for marginalized groups, strong moral convictions are also linked to a wide range of norm-violations, such as support for and participation in violence (Skitka, 2002; Ginges and Atran, 2009). Additionally, when individuals begin to act morally superior toward others (putting their own moral values before those of others), this can be an indication of radicalization (Van den Bos, 2018, 2020).

Radicalization of Thoughts, Feelings, and Behaviors

More generally, when people come to understand perceived unfairness they may start radicalizing in their thoughts and feelings (Van den Bos, 2018, 2020). They may rigidly begin to adhere to their own cultural worldviews or political beliefs (e.g., "How I feel about issues is the truth," see Van Prooijen and Krouwel, 2017), engage in dogmatic us-versus-them thinking (e.g., "The government is our enemy," see Moghaddam, 2005), start to delegitimize authorities or institutions (e.g., "The police cannot be trusted," see Sprinzak, 1995, 2009; Saucier et al., 2009), and feel morally superior (e.g., "People who think differently than me are of lesser value," see Peters, 2005; Täuber and Zomeren, 2012). This process can be reinforced when people feel threatened and uncertain, because then perceived unfairness is more likely to be an alarming experience and connecting with extreme ideas becomes more tempting (Hogg et al., 2013). In the climate context uncertainty feelings play a crucial role: climate change is associated with extinction of species, disappearance of nature, and calls into question the livelihood and safety of all humanity (Intergovernmental Panel on Climate Change [IPCC], 2021). This may trigger intense feelings of fear and despair, shape extreme worldviews, and drive violent action (Van den Bos, 2018, 2020).

It is very difficult to predict when radical thoughts and feelings eventually translate into radical behavior, but there are some important insights that help to understand this issue. When individuals come to reject the rule of law (and associated democratic principles), this is an important turning point in the radicalization process (Van den Bos, 2018). In this phase, processes of delegitimization play an important role. Delegitimization is the psychological process of withdrawing legitimacy, for example from an institution such as a state or from judges in a constitutional democracy (Sprinzak, 1991; Van den Bos, 2020). Through processes of delegitimization, people can distance themselves from societal systems, such as politics, and from principles of democracy and open societies (Popper, 1945). Questioning the legitimacy of a legal system can affect people's willingness to comply with its laws making engagement in disruptive forms of protest and law-breaking behaviors more likely (Tyler, 2006; Sprinzak, 2009; Jost et al., 2012; Van den Bos, 2018). Thus, the moment climate activists do not feel that they are taken seriously by their government, they may feel disappointed and become distrustful of them. When this happens, there is a change that protesters begin to delegitimize their rules (laws) and executors (police), decide that breaking laws is justified, and consider more extreme approaches against state actors morally justifiable (Van den Bos, 2018). We want to emphasize that many people occasionally oppose certain aspects of the law, but this does not lead them to engage in a violent rejection of the law.

What is noticeable about the climate movement, is that several groups use non-violent civil disobedience as a method of protest (Martiskainen et al., 2020; Thackeray et al., 2020; Furlong and Vignoles, 2021). Civil disobedience can be defined as "the public, intentional, political act in violation of the law, with the purpose of bringing about a change in law or policy" (Rawls, 1971; Chenoweth and Cunningham, 2013). While the vast majority of concerned citizens take peaceful action against climate change, some could go a step further and practice tactics of civil disobedience that push the boundaries of the law leaving a few tempted to resort to violence. For instance, people's willingness to disobey the law can move far beyond the specific unjust law in question, and spill over into a willingness to flout other unrelated laws as well (Nadler, 2005). It is important to note, however, that although law-breaking is encouraged in this method, the purpose of civil disobedience is to promote democracy (pursuing more just laws) and not to overthrow the democratic system or the rule of law. Without arguing that pushing the boundaries of the law with civil disobedience is necessarily a bad thing [many human rights emerged as a result of this tactic, see also Schuyt's (1972) analysis of civil disobedience], we must be aware that when people begin to develop contempt for the rule of law and start to sympathize with violent conduct, radicalization into violent extremism might become a realistic possibility (Van den Bos, 2018).

Group Characteristics and Social Dynamics

At some point, individuals can be attracted to engage in illegal and violent behaviors. Group and societal influences are especially important in this stage (Doosje et al., 2016; Feddes et al., 2020). One of the reasons why this is the case has to do with the observation that groups can provide individuals with radical unfairness frames. To illustrate: someone with sustainable ambitions may first decide to change their own lifestyle and become vegan, eventually realize that this is not enough and become involved in climate protests. After participating in several climate actions, this person may notice that—despite these efforts—their actions are not enough. They may feel outraged by this and start to wonder what could be done about this. Acting on this doubt, a climate movement can present this person with an unfairness frame, identifying the unfairness (the government has been negligent), offering the interpretation (the government only cares about financial interests), and providing an action perspective (join us and together we will demand their responsibilities with disruptive actions).

A group can shape unfairness frames that inspire law-breaking or violent behavior. Movements determine a frame by constructing an unfairness narrative in which they designate the victim of an unfairness (sometimes by amplifying their

victimization, see White, 1989; Čapek, 1993). In addition, they also judge who is to blame and this judgment constitutes their action repertoire. When governments, multinationals, or the fossil industry are identified as the primary cause of climate unfairness, they may turn into a common enemy that should be fought against. Such allocations of blame may make illegal or violent protest approaches directed at these actors more justified (Martin et al., 1990; Della Porta, 1995).

Individuals' actual engagement in radicalizing repertoires of action can furthermore be affected by several group characteristics. Group norms (about breaking the law or using violence) and social dynamics (like social control structures and role models) can determine in what ways individuals will behave during a protest (Bandura, 1977; Bjørgo, 2011). Within groups, individuals have a natural tendency to conform to certain social norms and rules (Perkins and Berkowitz, 1986; Berkowitz, 2010; Gidycz et al., 2011). When the social norm is that violence is justified, then group members are more likely to engage in violence as well (see Littman and Paluck, 2015). On the contrary, when a norm prescribes non-violence, this may prevent people from turning to violent conduct. In addition, social control structures can also constrain certain behaviors (Bandura, 1977). When a group that relies on the principle of non-violence gets intimidated by the police, some individuals may—despite the non-violent group norm—yet intuitively react to such perceived misconduct in an aggressive way. These violent impulses might, however, be corrected by other group members for it signals a deviation from their non-violent group norm. Social dynamics can therefore promote radicalization into violent behavior, but also counteract it.

Furthermore, the resources and opportunities that are available to groups determine their choice for strategies (Della Porta, 2018). For climate protesters in democratic societies, strategies of civil disobedience and law-breaking behavior may be considered an accessible and effective means (see Klein, 2010; Chenoweth and Cunningham, 2013; Engler and Engler, 2016). The use of violence, on the other hand, may backfire because it may lead the general public to view the protest group as less reasonable and reduce their identification with the group (Simpson et al., 2018). This in turn decreases the climate groups' mobilizing power. Nevertheless opinions on the morality and instrumentality of using violence when protesting for the climate are diverse. Where some people argue that violence could actually be considered a strategically and morally justified tool to groups protesting in oppressed societies (see Bandura, 2002; Vandello et al., 2011), others criticize the dominant adherence to non-violence in the West as well (see Gelderloos, 2007; Malm, 2021).

THE DYNAMIC UNFOLDING OF RADICALIZATION IN SOCIETY AND OVER TIME

In the previous sections, we explained how individual trajectories of climate-related radicalization can emerge from experiences of unfairness, how this could then proceed through different feelings, thoughts, and behaviors, and in what ways different temporal, spatial, and social contexts can influence this process. Now we zoom out and discuss several factors that lie outside the individual and which may influence the unfolding of their radicalization processes over time. After all, concrete events often serve as *trigger factors* to start radicalization processes (Feddes et al., 2020). Such trigger factors may concern experiences with discrimination, racism and exclusion, confrontations with authorities, arrests, state scandals, and governmental policies (Feddes et al., 2015, 2020).

It can be quite hard to predict the occurrence of actual trigger events and how they impact processes of radicalization. This is one of reasons why radicalization processes can arise sudden and do not always follow a linear and static trend. Thus, we emphasize that our model should not be interpreted as reflecting gradually developing radicalization processes. Instead, radicalization tends to involve dynamic and non-linear processes over time (see Taylor and Horgan, 2006; Bosi et al., 2014; Della Porta, 2018; Feddes et al., 2020). Several researchers have addressed the dynamic development of radicalization over time [for a social psychological overview, see Feddes et al. (2020); for historical analyses, see English (2008) and De Graaf (2011)]. Furthermore, an important contribution to this line of thought was provided by Della Porta in her work on political violence in the context of social movements (Della Porta, 1995). Through a historical analysis of leftist radicalizing groups in Italy and Germany from the 1960s to the 1990s, Della Porta showed how coincidental interactions between movements and societal actors (states) can suddenly reinforce or slow down radicalization. According to Della Porta, radicalizing individuals and groups often interact with a wide range of societal actors (police, counter-movements, the public) and these interactions can sometimes turn into conflicts.

Perhaps the most important opponent of protesters is the police. Historical case studies of various radicalizing groups show that fierce policing of protests (involving physical confrontations between protesters and police officers) triggered processes of radicalization (see White, 1989; Della Porta, 1995; Della Porta and Reiter, 1998). Police violence often produced an image of an unfair state and this reinforced the unfairness frames protesters adopted. Importantly, these case studies show that through repeated conflicts with the police, protesters who initially pursued non-violence became more willing to use violence over time (at first, only as a defense, later also in an active manner). What is important to note, is that positive interactions between movements and authorities (such as the fair policing of protests) likely reduce or buffer radicalization (Tyler and Jost, 2007; Wahlström, 2007; Tyler, 2011; Baker, 2014).

Conflicts between protesters and police can also occur during climate protests (see Diprose et al., 2017). Especially when climate protesters employ disruptive methods of civil disobedience to reach their climate goals, they will be constantly confronted by police, and their conflicting goals—the police's job is to enforce laws that protesters are seeking

to break—could be a breeding ground for escalation. When climate protesters feel unfairly treated by the police (through intimidation or a violent arrest), this can lead to an escalation of unfairness frames adopted by these protesters which can cause their radicalization to accelerate. Following Della Porta (2018), we therefore believe it is important to keep in mind that although climate protesters currently rarely advocate violence, disruptive forms of protest–that allow for random confrontations between protesters and counterparts–can give way to escalation because violence often emerges from spirals of action and reaction.

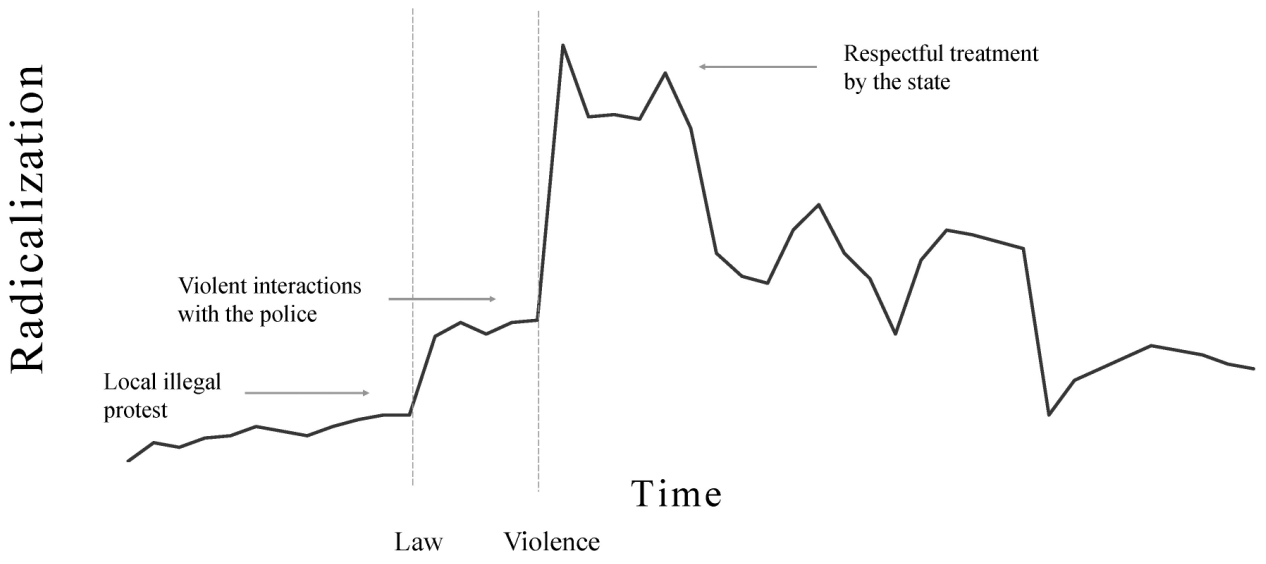
In addition, climate protesters may also constantly switch between different action strategies, because they may have multiple unfairness frames at their disposal (Della Porta, 2018). Protesters could start with a peaceful protest (school strike), then move through disobedient and illegal actions (spray-painting walls and joining road blockades), to violent actions (smashing windows) even within a day's time. They can also shift between violent and non-violent forms of protest or use these strategies simultaneously. Hence, their radicalization process is constantly changing. The dynamic, non-linear, and contingent quality that we assume is underlying many processes of climate radicalization over time is illustrated in **Box 1**.

SUMMARY, CONSIDERATIONS, AND FUTURE DIRECTIONS

In this manuscript we outlined why a contextualized approach to perceived unfairness is pertinent to better understand possible radicalization in relation to climate change. Radical attitudes and actions are, as are all types of behaviors, products of past influences and projected imaginations for the future, and subject to dynamical temporal developments and interactions on a societal level (Gergen, 1973; Della Porta, 1995, 2018; Van den Bos and De Graaf, 2020). Therefore, we propose a balanced approach combining two scientific disciplines that developed relatively in isolation of each other: political history and social psychology. Focusing on macro-level explanations for political violence, historical research has addressed contextual factors, such as the strategies of states, societal structures, and trigger events (Crenshaw, 1981; Della Porta, 1995; De Graaf, 2010). Underlying (cognitive) explanations of the causes of certain instances, however, are often lacking and empirical testing of the outcomes of historical analysis is only rare. Concentrating on micro-level explanations, social psychology linked radicalization to individuals' motives, cognitive processes and social environment (McCauley and Moskalenko, 2008; Kruglanski et al., 2018;

BOX 1 | The (hypothetical) unfolding of climate radicalization processes in society and over time.

In this hypothetical example, concerned citizens in Western societies engage in radicalization processes that are initially triggered by the presence of illegal climate actions in the spatial context of their local neighborhood. People who have read the latest IPCC report may infer important messages from that report that symbolize that their government is blameworthy. Furthermore, historical information in the report reveals that governments should have been aware of climate issues already since the last century and should have started looking for a manner to express the unfairness that this situation triggered. As a result, readers of the report could decide to join an action in which local protesters block a busy traffic road in front of a ministry to gain the government's attention. Further radicalization could then be influenced by political structures and governmental responses. For example, when protesters believe that politicians are not listening to their concerns and experience little influence through the political and judicial system. In fact, when people experience symbolic events that signal that the government remains negligent in its actions, despite disruptive climate protests reminding them of their responsibilities, citizens may feel that they have no other options but to occupy government buildings in order to be heard. If the state then decides to strictly enforce law and order by arresting these protesters on several occasions, these symbolic events could give way to escalation between protesters and the police, triggering further radicalization. However, when protesters then feel being treated respectfully by the state, because police officers show that they prioritize protesters' right to demonstrate over public order violations during protests, this symbol of freedom of protest can in fact dampen radicalization processes.



Van den Bos, 2018). Yet the question remains as to how historical processes and societal contexts may affect such radicalization.

To capture this, we introduced a theoretical model of climate radicalization that integrates social psychological theories of unfairness with historical insights. We described how besides individuals' immediate surroundings, several other contexts, including the past, the future, and those that are spatially distant from them, can play a role in radicalization processes that are driven by perceived unfairness. Drawing on the work of Della Porta (1995, 2018), we then argued that climate radicalization can be seen as a process of (de)escalation that unfolds over time through various interactions between people and their contexts and in which individuals and groups move back and forth from peaceful protest through unlawful methods to violent repertoires of action. Some individuals primarily engage in legal climate protests, and, over time, might start adhering to more radical beliefs, guiding their choices for radial action repertoires. A change in the use of the unfairness frames that people employ may explain why radicalization processes suddenly speed up or slow down. This can be triggered by perceived unfair interactions between people and the state, such as violent confrontations with the police. To better understand if such climate radicalization will occur, it is thus crucial to study what drives individuals to turn to illegal and violent forms of protest, while considering that the development of their radicalization process does not follow a linear and static trend, but rather unfolds in a dynamic, contingent, and non-linear way.

Importantly, a number of issues must be considered when interpreting, developing, and testing our model. First, the model does not present an exclusive representation of people's radicalization process. Other factors and processes could also be important. For example, previous studies revealed the importance of individuals' emotions (anger, hate, and contempt), self-corrections (Van den Bos, 2018; Feddes et al., 2020), and quest for significance (Kruglanski et al., 2014). We also propose that sense of urgency could be crucial, because when individuals feel there is no time left this may increase their perceived need for radical actions (Bond et al., 2020). In addition, our model could be tested in other contexts, such as in non-Western samples and societies (see Henrich et al., 2010a,b). The relevance of the model can also be assessed among other forms of radicalization, such as processes of COVID-19 radicalization (see Bartusevičius et al., 2021). Second, although the arrows in our model suggest directional relationships, empirical work must establish such causality. Does perceiving more unfairness lead only to the adoption of radical attitudes, or do people with stronger radical views also perceive more unfairness? In addition, the possibility that different unfairness frames drive different radicalization paths should be explored while considering that people can have multiple frames at their disposal (they often shift between violent and non-violent actions; Della Porta, 2018). Third, we want to remark that although attitudes are often an important predictor of behavior, beliefs not always manifest in behavior, radical actions may also precede attitudes, and, in some cases, radical views remain lacking (with "thrill" seekers, Feddes et al., 2020).

In conclusion, the study of the possible radicalization of climate protest can benefit from insights of historical and societal contexts in which perceptions of unfairness develop over time within individuals and groups participating in these protests. Taking these factors into account is important because radicalization processes do not occur in a contemporary vacuum. Instead, various temporal and spatial contexts inevitably play a role in shaping current perceptions of unfairness that steer radicalization. Furthermore, insights from the field of political and security history have revealed the dynamic course of movement radicalization and its dependence on contingent macro-level interactions. Therefore, radicalization processes may suddenly accelerate (or reverse). Thus, to better understand if, when, and why climate protesters and groups will translate radicalizing attitudes and extreme views into law-breaking or violent behaviors, adopting insights from the field of history is an innovative and promising approach to complement social psychological research on radicalization.

AUTHOR CONTRIBUTIONS

AJ wrote the manuscript. KB and BG contributed to, reviewed, and edited the manuscript. All authors planned and discussed the objectives and structure of the manuscript and approved the submitted version.

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The Moderating Effects of "Dark" Personality Traits and Message Vividness on the Persuasiveness of Terrorist Narrative Propaganda

Kurt Braddock[1], Sandy Schumann[2], Emily Corner[3] and Paul Gill[2]*

[1]School of Communication, American University, Washington, DC, United States, [2]Department of Security and Crime Science, University College London, London, United Kingdom, [3]Centre for Social Research and Methods, College of Arts and Social Sciences, Australian National University, Canberra, ACT, Australia

Terrorism researchers have long discussed the role of psychology in the radicalization process. This work has included research on the respective roles of individual psychological traits and responses to terrorist propaganda. Unfortunately, much of this work has looked at psychological traits and responses to propaganda individually and has not considered how these factors may interact. This study redresses this gap in the literature. In this experiment ($N = 268$), participants were measured in terms of their narcissism, Machiavellianism, subclinical psychopathy, and everyday sadism—collectively called the Dark Tetrad. Participants were then exposed to a vivid or nonvivid terrorist narrative (or a control message). Results indicate that Machiavellianism interacts with both narrative exposure and narrative vividness to amplify the persuasive effect of terrorist narratives. Neither narcissism, subclinical psychopathy, nor everyday sadism had such an effect. These results highlight the importance of considering the psychological traits of audiences when evaluating proclivity for radicalization *via* persuasion by terrorist narratives.

Keywords: terrorism, radicalization, narratives, narcissism, Machiavellianism, psychopathy, sadism, vividness

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****Correspondence:***
Kurt Braddock
braddock@american.edu

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INTRODUCTION

Many early terrorism researchers argued that an individual's proclivity for engaging in terrorism is a function of that person's personality. As the study of terrorism matured, however, experts learned that engagement in terrorist activity cannot be explained by one's personality traits alone (see Taylor, 1988; Silke, 1998; Borum, 2003; Horgan, 2003, 2008). More recent research has asserted the importance of individuals' relationships and interactions with those who are already involved with terrorism. Specifically, under the "right" conditions and when exposed to the "right" stimuli (see Bouhana, 2019), certain personality factors can make an individual more prone to violent radicalization. To illustrate, recent research has shown that certain dispositional traits can render an individual more prone to ideological polarization when combined with specific kinds of interactions. For example, Van Prooijen and Krouwel (2019) argued that cognitive simplicity (i.e., black-and-white thinking about their social world), overconfidence in one's belief system, and intolerance of other belief systems are associated with political extremism. Van Prooijen and Kuijper (2020) demonstrated these relationships

experimentally, adding that the feeling that one's cause is meaningful and willingness to sacrifice oneself or harm others are also associated with extremism. These findings are significant, given that many of these traits are described and emphasized in propaganda perpetuated by extremists that seek to draw others to their cause.

Despite the possibility that the interaction between personality traits and communication facilitates violent radicalization, to date, most research has investigated these risk factors in isolation. For example, past researchers have explored whether individuals who are psychopathic (Cooper, 1976; Hacker, 1976) and/or narcissistic (Lasch, 1979; Post, 1984, 1986; Pearlstein, 1991; Johnson and Feldmann, 1992) were disproportionately likely to join terrorist groups. Additionally, other researchers have demonstrated that exposure to propaganda in support of terrorist organizations can promote support for those organizations (Corman and Schiefelbein, 2008; Halverson et al., 2011; Braddock, 2015; Braddock and Horgan, 2016).

Despite research on the respective effects of personality factors and terrorist messaging, the interaction between them remains unexplored.[1] This oversight is notable and unfortunate, as the persuasiveness of a message is contingent not only on its content or presentation, but also on the psychological features of those to whom it is presented (e.g., Gerber et al., 2013; Chuang and Tabak, 2015; Lawson et al., 2017; Wall et al., 2019; Zeineddine and Leach, 2021). The present study addresses this gap in the literature.

We explicate a potent form of communication that pervades terrorist propaganda efforts—narratives, and focus on a particular feature of narratives, their vividness. We also examine four personality traits collectively known as the Dark Tetrad (narcissism, Machiavellianism, subclinical psychopathy, and everyday sadism) that may moderate the influence of vivid terrorist narratives on beliefs, attitudes, and behavior in line with terrorist propaganda. With this study, we advance understanding of how, and under what conditions, individuals may be persuaded to support terrorist organizations—and by extension, how these outcomes could be prevented.

Narrative Persuasion

The study of narrative has produced no shortage of definitions for the term (see Ryan, 2007 for a summary). Though every proposed definition offers some insight into the inherent qualities that narratives possess, we follow Braddock and Dillard (2016, p. 447) to define a narrative as "any cohesive, causally linked series of events that takes place in a dynamic world subject to conflict, transformation, and resolution through non-habitual, purposeful action performed by characters."

Despite extensive research on narratives, until recently, there had been little evidence to indicate whether they are as persuasive as theorized. Some studies demonstrated that exposure to a narrative would influence an individual's beliefs and attitudes such that they are in closer alignment with viewpoints espoused therein. Other work found no persuasive effect of narrative, or that narratives induced an *inverse* persuasive effect whereby participants came to adopt viewpoints contrary to the narrative content.

To provide more conclusive evidence as to whether and how narratives persuade, Braddock and Dillard (2016) performed meta-analyses on extant empirical narrative research. Similar to other systematic analyses of narrative forms of persuasion (see Tukachinsky and Tokunaga, 2013; Van Laer et al., 2014; Shen et al., 2015; Oschatz and Marker, 2020) the authors found that across contexts, narrative exposure affects an individual's beliefs, attitudes, intentions, and behaviors in a manner consistent with the views espoused in the narrative. This finding is relevant in the context of terrorism and political violence, given that terrorist groups' extensive use of narratives represents a potentially effective form of persuasion.

Narrative Vividness

Researchers have long argued that a message's vividness affects its persuasiveness (see Taylor and Thompson, 1982; Block and Keller, 1997; Escalas, 2004). However, the overall literature on narrative vividness is largely inconclusive as a result of how the concept has been defined. The seminal work on vividness is a chapter by Nisbett and Ross (1980) on the subject, which described vivid messages as those that are emotionally interesting, concrete (i.e., specific), imagery-provoking, and sensorially, temporally, or spatially proximate (p. 45). Though this definition served as the basis for a significant amount of subsequent work, Dillard (2014) highlighted a number of issues. Most notably, emotional interest and the provocation of imagery are outcomes of messages rather than features of them. As such, studies that have used this definition may have failed to gauge the persuasive power of vividness as an exclusive feature of messages.

To avoid this issue, we define narrative vividness independent of the outcomes that messages produce or their interdependence with audiences at which messages are aimed. Specifically, and similar to Keller and Block (1997), we define vividness as the degree to which a message is specific about individuals, their actions, the contexts in which those actions occur, and the actions' outcomes in the story. In an illustrative example, an experimental manipulation by Smith and Schaffer (2000) contrasted "an increase in the probability of an accident" (nonvivid condition) with "a high risk of bloody, bone-crushing accidents" (vivid condition; p. 777).

Although other features of messages have also received significant attention, we focus on vividness because of its widespread presence in terrorist narrative propaganda (Braddock, 2012) and its likely associations with the components of the Dark Tetrad.

Terrorist Use of Narratives

Horgan (2014) rightly observed that analysts typically describe terrorist behavior as somehow "special." Although terrorism is statistically and normatively irregular, there is no evidence to suggest that the social and psychological dynamics that drive

[1]Lee and Leets (2002) is a rare exception. The authors evaluated the explicitness of hate groups' messages and how it affected the persuasiveness of those messages.

terrorism are different from those that underpin "normal" behavior (Braddock and Horgan, 2016). How terrorist groups persuade their audiences is, in principle, similar to how nonviolent groups persuade theirs. Message content differs, but the psychological mechanisms that induce persuasion are essentially the same. When a communicator wishes to influence an audience, he/she seeks to align the audience's beliefs, attitudes, and intentions with his/her goals. When these goals relate to the adoption of an extremist ideology that supports the use of violence, changes in beliefs and attitudes are commonly dubbed radicalization (Braddock, 2020).

Although radicalization remains a poorly defined term, it is most commonly used to describe a process of social and psychological change preceding an individual's engagement in terrorism (see Horgan, 2014). However, some researchers contend that engagement in violent activity can occur before belief and attitude change (e.g., Sageman, 2008). In these cases, fighters retroactively adopt extremist ideologies to justify the violent action in which they have already engaged. Case analyses from terrorism studies support both scenarios, but in the case of the former, the persuasive strategies employed by terrorist organizations are fundamental to the dissemination of ideas that promote belief and attitude change that precedes violence.

Terrorists use several strategies to communicate with audiences and promote the adoption of their ideologies. One the most popular is the distribution of narratives containing themes consistent with the group's ideology (Braddock and Horgan, 2016). On the popular *Stormfront* online discussion forums, radical white nationalists post narratives related to fictional race wars, confrontations with members of other races, and the exploits of the heroes of white nationalism.[2] The Animal Liberation Front (ALF), a group responsible for violent attacks against people and property viewed as enemies of animal rights, maintains an online archive of sympathetic narratives created by ideological adherents.[3] Several jihadist groups tell the story of Muhammad's victory over the Meccans in the Battle of al-Badr as a metaphor for the group's own struggles (Furlow and Goodall, 2011). As these and other examples illustrate, there is no shortage of terrorist groups using narratives to interact with audiences, particularly as it relates to imparting values that render individuals more likely to engage in violence (e.g., Atran, 2020, 2021).

Research on terrorist communication has shown that these narratives are effective vehicles for promoting the assimilation of extremist beliefs, attitudes, and intentions that can ultimately lead to engagement in violent behavior (e.g., Braddock, 2015). Taken together, the persuasive potency of narratives (Braddock and Dillard, 2016) and the ubiquity of terrorist narratives that prompt psychological processes that contribute to radicalization (Corman, 2011; Furlow and Goodall, 2011) suggest that "exposure to terrorist narratives can at least theoretically increase an individual's risk for supporting terrorism" (Braddock and Horgan, 2016, p. 385).

[2]http://www.stormfront.org.

[3]http://www.animalliberationfront.com/Saints/Authors/Stories/stories.htm.

Despite their persuasive power, it would be unwise to presume that an individual would adopt extremist beliefs or attitudes *solely* as a function of their exposure to a terrorist narrative. Indeed, the low base-rate of terrorist activity suggests that most who are exposed to terrorist narratives are not swayed by them. Moreover, meta-analyses of Braddock and Dillard (2016) suggested the presence of yet-unidentified moderators that can affect a narrative's persuasiveness. These findings suggest that other factors—including personality factors—can affect an individual's responses to persuasive narratives.

The Dark Tetrad and Message Features

The Dark Tetrad is a collection of four personality traits that are linked to harmful outcomes. Initially, three "dark" personality traits—*narcissism*, *Machiavellianism*, and *subclinical psychopathy*—were summarized as the "Dark Triad" (Paulhus and Williams, 2002; Jakobwitz and Egan, 2006). Later researchers added *everyday sadism* to the taxonomy, bringing it to its current form (Chabrol et al., 2009).

The Dark Tetrad traits have been associated with aversive behavioral outcomes, including bullying (Baughman et al., 2012), juvenile delinquency (Chabrol et al., 2009), racist attitudes (Jones, 2013), and criminal activity (Hare and Neumann, 2008). Early research also attempted to directly link some of these traits with engagement in terrorism (e.g., Cooper, 1976; Hacker, 1976), though this work was largely dismissed as empirically and methodologically unsound (Horgan, 2005; Victoroff, 2005).

Although the components of the Dark Tetrad have "distinctive theoretical roots" (Jones and Paulhus, 2014, p. 28), their unique conceptualization and effects on behavioral outcomes are not always clear. Some have even argued that narcissism, Machiavellianism, and psychopathy are essentially interchangeable in non-clinical populations (e.g., McHoskey et al., 1998). However, research spearheaded by Daniel Jones and Delroy Paulhus has delineated the various aversive personalities (see Paulhus and Williams, 2002; Jones and Paulhus, 2009, 2010, 2011, 2014; Jones and Figueredo, 2012; Furnham et al., 2013). Notably, they have shown that the personality traits comprising the Dark Tetrad are often associated with the manifestation of different respective behavioral effects under different conditions. For instance, narcissism and subclinical psychopathy are both associated with aggressive behaviors, but manifest in response to different types of threats (Jones and Paulhus, 2010).

To explore how narcissism, Machiavellianism, subclinical psychopathy, and everyday sadism moderate the effects of features of narratives, it is important to first review the nature of these personality traits as well as their theorized association with support for terrorism.

Narcissism

Narcissism is defined by an internal conflict between "grandiose identity and underlying insecurity" (Jones and Paulhus, 2014, p. 29). Narcissists tend to have exalted views of themselves that are difficult to affirm (Paulhus and John, 1998). At the same time, these self-perceptions are often unstable, so confirming them is critical for the narcissist's psychological well-being

(Jordan et al., 2003). Given this need to validate their self-perceptions, narcissists perpetually seek to reinforce their own egos, which can lead to self-destructive behaviors (Morf and Rhodewalt, 2001; Vazire and Funder, 2006). This quest for grandiosity can be so strong as to promote a sense of entitlement that can manifest as hostility or aggression if that grandiosity is questioned or threatened (Bushman and Baumeister, 1998; Jones and Paulhus, 2010).

Given the link between narcissism and aggressive tendencies, early terrorism researchers claimed that terrorists tend to have narcissistic qualities (Lasch, 1979; Post, 1984, 1986; Pearlstein, 1991; Johnson and Feldmann, 1992). As outlined above, however, these models were often simplistic and were dismissed as the study of terrorism progressed. Recently, however, narcissism has been examined in conjunction with other factors that may predict an individual's violent radicalization or engagement in terrorism. For instance, psychiatrists and other experts concluded that Anders Breivik, who killed 77 civilians in Norway in 2011, harbored a narcissistic personality that was exacerbated by delusions and the cultivation of extreme right-wing attitudes toward what he called "cultural Marxism" in Europe (Aspaas and Tørrissen, 2012; Jacobsen and Maier-Katkin, 2015).

Others have linked narcissism with sensation-seeking and risk-taking (e.g., Vazire and Funder, 2006), which Lankford (2013) argued are typical among terrorists that seek to conduct the most "daring and elaborate" attacks (e.g., suicide terrorism, p. 147). Some researchers have uncovered even more direct links between sensation-seeking and one's predilection for extremist activity.

In summary, narcissism may not predict engagement in terrorism in and of itself. However, it is possible that narcissists are more prone to persuasion *via* terrorist narratives than non-narcissists. A significant proportion of terrorist propaganda is designed to illustrate how supporting the terrorist organization can fulfill an individual's need to be part of something greater than him/herself. In doing so, terrorist propaganda may promise an individual the means to continuously reinforce his/her grand self-perceptions. As such, terrorist narratives may appeal to narcissists because they not only explain that a target recruit *can* be great, but also *how* that greatness can be achieved.

Given this, we offer the following hypothesis:

> *H1*: Narcissism moderates the effect of exposure to terrorist narratives on beliefs, attitudes, and behavioral intentions, such that the persuasiveness of terrorist narrative content is greater for individuals who report higher levels of narcissism.

Machiavellianism

Machiavellianism is commonly characterized as a predisposition to regard other individuals as tools to be manipulated (Sutton and Keogh, 2000). Machiavellians tended to exploit and behave coldly toward others (Christie and Geis, 1970) and maintain a general cynicism and lack of morality in response to the world around them (Furnham et al., 2013). Jones and Paulhus (2009) added that Machiavellianism is also characterized by planning, coalition forming, and the maintenance of one's reputation. This latter addition distinguishes Machiavellianism from subclinical psychopathy (see below). Whereas psychopaths tend to behave impulsively, abandon valued others, and have little regard for their reputations (Hare and Neumann, 2008; Jones and Paulhus, 2014), Machiavellians are careful to plan their behaviors such that they are simultaneously self-serving and reputation building. To illustrate, Machiavellians rarely fake weakness or manipulate those close to them (Shepperd and Socherman, 1997; Barber, 1998). Though these behaviors may serve their short-term interests, Machiavellians would avoid the resulting damage to their reputations. As summarized by Jones and Paulhus (2014), Machiavellianism is fundamentally characterized by a proclivity toward manipulation, callous affect, and an orientation for strategic calculation.

Machiavellian characteristics would seem to lend themselves to an understanding of terrorist motivation. After all, terrorists are often described as manipulative, callous, and strategically oriented. To our knowledge, however, no research has explored how Machiavellianism may affect the likelihood of an individual's violent radicalization and/or engagement in terrorism.

The relative absence of work on Machiavellianism and terrorism begs the question as to why it should be included in empirical models predicting belief, attitude, or intention change in response to terrorist propaganda. We believe that Machiavellianism may moderate the effect of exposure to terrorist narratives for two reasons. First, terrorist propaganda often makes appeals to self-interest and reputation-building. Although terrorist narratives typically highlight the benefits of engagement to the group's purported constituents, they also emphasize benefits that could befall the message's target (Christien, 2016; Braddock, 2020). Second, terrorist propaganda can be particularly graphic in its depiction of enemy treatment (e.g., execution videos). The brutality of these messages may appeal to the callous nature of Machiavellians.

Therefore, we predict:

> *H2*: Machiavellianism moderates the effect of exposure to terrorist narratives on beliefs, attitudes, and behavioral intentions, such that the persuasiveness of terrorist narrative content is greater for individuals who report higher levels of Machiavellianism.

Subclinical Psychopathy

Original descriptions of psychopathy tended to frame it as a severe personality disorder characterized by callousness and a lack of emotion (Cleckley, 1976). However, some experts (e.g., Ray and Ray, 1982) predicted that the study of psychopathy could extend beyond the clinical sphere to the mainstream (Furnham et al., 2013). Consistent with this conjecture, researchers began to treat psychopathy not as a categorical entity of mental illness, but as a component of an individual's personality (see Levenson, 1992). Though this latter conceptualization, referred to as *subclinical psychopathy*, is associated with a "lighter" form of antisocial tendencies, it is nonetheless viewed as the most malicious of the original Dark Triad (Rauthmann, 2012). Subclinical psychopathy typically manifests as impulsivity or thrill-seeking coupled with a lack

of empathy for others and a lack of remorse for one's actions (Lilienfeld and Andrews, 1996; Kapoor, 2015).

Subclinical psychopathic characteristics likely interact with certain features of terrorist messages to influence their persuasiveness. For instance, individuals with a proclivity for sensation-seeking (of which thrill-seeking is a constituent factor; Zuckerman, 1971) tend to be drawn to messages that are presented in a dramatic, intense fashion (Donohew et al., 1991; Stephenson, 2003). Given this, it may be that terrorist narratives (which often depict dramatic, intense scenes related to the group's conflict) will be more persuasive to those with a stronger expression of subclinical psychopathy. Moreover, sensation-seekers and impulsive individuals tend to seek out and engage in risky behaviors (Voigt et al., 2009; Braddock et al., 2011). Given the inherent risks associated with engagement in terrorism (i.e., capture, arrest, and death), terrorist narratives are likely to appeal to those that seek these risky thrills.

Given these arguments, we predict:

> *H3*: Subclinical psychopathy moderates the effect of exposure to terrorist narrative on beliefs, attitudes, and behavioral intentions, such that the persuasiveness of terrorist narrative content is greater for individuals who report higher levels of subclinical psychopathy.

Everyday Sadism

Whereas most individuals feel upset after causing harm to an innocent person, others experience pleasure, excitement, or arousal. Rather than assuage the suffering of those around them, these individuals often pursue opportunities for brutality or cruelty (Baumeister and Campbell, 1999; Buckels et al., 2013). Most studies on this kind of disposition have focused on drastic forms of cruelty, like sexual aggression and violence (e.g., Federoff, 2008; Nietschke et al., 2009). However, Buckels et al. (2013) rightfully argue that some non-clinical individuals also enjoy other forms of cruelty, as evidenced by the popularity of violent media and sports, as well as the pervasiveness of police and military brutality (p. 2201). The authors argue that this enjoyment represents a less-extreme form of sadism which they refer to as *everyday sadism*.

In contrast to the other components of the Dark Tetrad, there has been very little empirical work on everyday sadism and its outcomes. In one study, Chabrol et al. (2009) demonstrated that sadism was significantly associated with antisocial behavior independently of narcissism, Machiavellianism, and subclinical psychopathy. Subsequently, everyday sadism was added to the factors of the Dark Triad to produce the Dark Tetrad. Moreover, individuals who scored high on a scale of implicit sadism were more prone to unprovoked aggression than their non-sadistic counterparts (Reidy et al., 2011). Finally, Buckels et al. (2013) found that relative to non-sadists, sadists were more likely to enjoy killing insects, aggress against innocent others, and intensify their attacks when they realize the target of their aggression would not retaliate.

To our knowledge, there has been no work on the effect of everyday sadism on violent radicalization. Popular media often characterize terrorists as sadists, motivated exclusively by an enjoyment of doling out pain. Although contemporary researchers have largely cast aside these overly simplistic models for explaining terrorism, it is possible that an audience member's expression of everyday sadism influences the effect of terrorist narratives on violent radicalization.

As such, we predict:

> *H4*: Everyday sadism moderates the effect of exposure to terrorist narratives on beliefs, attitudes, and behavioral intentions, such that the persuasiveness of terrorist narrative content is greater for individuals who report higher levels of everyday sadism.

The Moderating Effect of Narrative Vividness

Vividness and Narcissism

As outlined above, narcissism is associated with sensation-seeking and risk-taking (Vazire and Funder, 2006). Moreover, high sensation-seekers are more likely to be persuaded by messages that are presented in a graphic, intense manner than their low sensation-seeking counterparts (Donohew et al., 1991; Stephenson, 2003). Zmigrod and Goldenberg (2021) additionally argued that when high sensation-seekers are unable to adapt their behaviors to changing environments and task demands, they are at greater risk for supporting ideologically inspired violence. Taken in concert, these findings suggest that the degree to which a terrorist narrative is comprised of language that depicts graphic scenes will moderate the extent to which narcissism influences the persuasiveness of that narrative.

So, we offer the following hypothesis:

> *H5*: Narcissism moderates the effect of narrative vividness on beliefs, attitudes, and behavioral intentions, such that vivid narratives are more persuasive for individuals who report higher levels of narcissism.

Vividness and Machiavellianism

Recall that Machiavellians tend to be callous in nature. This cold-heartedness may render them more susceptible to persuasion *via* messages that include graphic descriptions of events. As a result, it is possible that the vividness of terrorist narrative propaganda influences the degree to which that propaganda affects a Machiavellian's beliefs, attitudes, or intentions in relation to the terrorist organization.

To test this possibility, we test the following hypothesis:

> *H6*: Machiavellianism moderates the effect of narrative vividness on beliefs, attitudes, and behavioral intentions, such that vivid narratives are more persuasive for individuals who report higher levels of Machiavellianism.

Vividness and Subclinical Psychopathy

Given the subclinical psychopath's relative lack of empathy (Lilienfeld and Andrews, 1996), as well as the close association

between subclinical psychopathy and Machiavellianism (which is characterized by callousness; Fehr et al., 1992), the graphic nature of vivid terrorist narrative propaganda may be more appealing to those with subclinical psychopathic tendencies. This may be particularly true if the narrative depicts violent treatment of enemies in a graphic way.

Following from this, we predict that:

> *H7*: Subclinical psychopathy moderates the effect of narrative vividness on beliefs, attitudes, and behavioral intentions, such that vivid narratives are more persuasive for individuals who report higher levels of subclinical psychopathy.

Vividness and Everyday Sadism

Terrorist narratives often depict explicit acts of violence against purported enemies of the group in great detail. Consider, for example, the propaganda videos released by the so-called Islamic State (IS) that showed the immolation execution of a Jordanian pilot. They often also depict how the group's enemies attacked individuals that the group purports to represent and defend. Hamas, for example, often includes stories on its website describing how the Israeli army has killed civilians in the Palestinian territories. The detail associated with depictions like these may provide everyday sadists with feelings of pleasure or excitement that render them more likely to be persuaded by the narrative.

Given this possibility, we believe that:

> *H8*: Everyday sadism moderates the effect of narrative vividness on beliefs, attitudes, and behavioral intentions, such that vivid narratives are more persuasive for individuals who report higher levels of everyday sadism.

MATERIALS AND METHODS

Participants

Data were gathered from a national, opt-in online survey panel of American adults through Qualtrics panels in the summer of 2018. Screening questions disqualified participants who were younger than 18 years old or could not understand English (the language in which all experimental materials were presented). After removing participants who completed the survey in less than 25% of the median completion time, provided non-differentiated data (also known as straight-lining), or failed to provide data altogether, the final sample comprised 268 participants. Respondent ages ranged from 18 to 76 years old ($M_{age} = 33.24$, $SD_{age} = 11.91$) and 79.1% of participants were male. A sensitivity analysis revealed the sample size ($N = 268$) to be sufficient for detecting small-to-medium effect sizes (critical $f^2 = 0.076$) assuming statistical power of 0.80 and an alpha level of 0.05.

Design and Procedure

We employed a posttest-only, between-subjects experimental design with two experimental conditions and one control condition. Independent variables included both individual-level (i.e., Dark Tetrad trait characteristics) and message-level (i.e., vividness) measures. Dependent variables were participant beliefs, attitudes, and intentions related to a group described in the stimuli and the violent actions it undertakes.

After enrolling in the study, respondents were directed to the survey website where they provided consent to participate. They were next directed to a screen welcoming them to the study and describing the nature of their participation. Participants were then prompted to click "Next" to move into the study.

Following the provision of consent, participants were directed to survey items measuring the Dark Tetrad trait characteristics, as well as other personality measures to be included in the analyses as moderators. Following the administration of these measures, participants were randomly assigned to one of three conditions in which they were exposed to a high-vividness narrative ($n = 86$), a low-vividness narrative ($n = 90$), or a control condition in which they were only informed of the group's goals and actions (i.e., no narrative stimulus; $n = 92$). Participants then responded to survey items measuring their beliefs, attitudes, and intentions regarding the extremist group. They were then thanked for their participation and debriefed.

Materials

All conditions began with a brief description of a group called the Homeland Liberation Alliance (HLA).[4] This brief passage describes how the HLA launches occasional attacks into a neighboring country as part of ongoing hostilities between the HLA and the people of that country. This description also highlights the HLA's grievances with the neighboring country, including the theft of its land, the decimation of its economy, and the country's use of violence against the civilians in the group's territory.

The narratives in the experimental conditions were adapted from a story that appeared on the website for the Islamic militant group, Hamas. This story describes an alleged incident in which a guard at an Israeli checkpoint executes a 74-year-old Palestinian woman after giving her water and posing for a photo. In the nonvivid condition, the account of the incident is presented in a straightforward manner and with little descriptive elaboration (e.g., *…the woman had already been dead for hours*). The narrative in the vivid condition featured much more detailed language, including graphic descriptions of the shooting itself (e.g., *…the woman had died hours before, her blood having drained out onto the street where it had dried to a dark brown gel*). In the control condition, participants were exposed only to the brief introductory description of the group, its grievances, and its goals.

[4]The "Homeland Liberation Alliance" does not exist; we used this name to describe the group in our stimuli for two key reasons. First, the use of a nonexistent organization avoided belief, attitude, or intention changes in relation to an actual terrorist group, an outcome we would consider unethical and unacceptable. Second, the name of the group is geographically, ethnically, and culturally non-specific. By basing the purported source of the messages from a location that could not be identified, we sought to mitigate any confounding effects of perceived geographic proximity, affinity, or affiliation.

The vivid and nonvivid narrative conditions were comparable in length, dialectical complexity (complexity achieved through the inclusion of multiple viewpoints), and integrative complexity (complexity achieved with the use of multifaceted arguments; see Baker-Brown et al., 1990). The control condition contained no narrative content and was thus shorter than the passages in the narrative conditions.

Both narrative stimuli and the control condition are available *via* the Open Science Framework at https://tinyurl.com/darktetradconditions.

Measures

All scales used for data collection are available for review at the Open Science Framework at https://tinyurl.com/darktetradscales.

The Dark Tetrad

Narcissism, Machiavellianism, and Subclinical Psychopathy

To measure narcissism, Machiavellianism, and subclinical psychopathy, we used Short Dark Triad (SD3) of Jones and Paulhus (2014). For each of the three subscales, participants were asked to rate their agreement on a Likert-type scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). Sample items include *I insist on getting the respect I deserve* (narcissism), *most people can be manipulated* (Machiavellianism), and *payback needs to be quick and nasty* (subclinical psychopathy).

We used the SD3 for two key reasons. First, the brevity of the SD3 avoids validity issues related to participant fatigue. Although other measures of narcissism (the shortened Narcissistic Personality Inventory; Ames et al., 2006), Machiavellianism (the Mach-IV; Christie and Geis, 1970), and psychopathy (the Self-Report Psychopathy Scale; Williams et al., 2007 and Psychopathic Personality Inventory; Lilienfeld and Andrews, 1996) have been used extensively, none of the individual subscales has fewer than 16 items. To measure all three traits using these scales, a questionnaire would need to contain no fewer than 65 items. In contrast, the SD3 measures all three components of the Dark Triad with a total of 27 items.

Second, past comparisons of the SD3 to another shortened measure of the Dark Triad—Dirty Dozen of Jonason and Webster (2010) have favored the former over the latter (c.f., Lee et al., 2013). The Dirty Dozen has been criticized for its weak association to quintessential measures of the three traits (Miller et al., 2012) and the fact that the cross-correlations tend to be stronger than convergent correlations with gold-standard measures (Rauthmann, 2013; Jones and Paulhus, 2014). In contrast, the SD3's subscales have demonstrated strong correlations with their respective standard measurement instruments ($r = 0.82$–0.92; Jones and Paulhus, 2014, p. 34). Given the shortcomings of other available measures of narcissism, Machiavellianism, and subclinical psychopathy, the SD3 represents the best option for measuring these three traits. Over multiple studies, Jones and Paulhus (2014) reported acceptable reliability estimates for the narcissism (average $\alpha = 0.72$), Machiavellianism (average $\alpha = 0.76$), and psychopathy (average $\alpha = 0.75$) subscales. Our analysis offered similar results, providing acceptable reliability estimates for the narcissism[5] ($\alpha = 0.71$), Machiavellianism ($\alpha = 0.82$), and subclinical psychopathy subscales ($\alpha = 0.82$).

Everyday Sadism

To measure everyday sadism, we administered the 10-item Short Sadistic Impulse Scale (SSIS; O'Meara et al., 2011). Psychometric analysis of the SSIS (O'Meara et al., 2011, $\alpha = 0.86$), as well as studies that have employed it (e.g., Buckels et al., 2013, $\alpha = 0.87$), have shown the scale to have good internal consistency. Although the original version of the SSIS was presented such that participants responded to all the items dichotomously (i.e., "like me" vs. "unlike me"), we adapted the SSIS such that it appeared as a series of Likert-type scales ranging from 1 (Strongly disagree) to 7 (Strongly agree). Questions on the scale included *I enjoy seeing people get hurt* and *I have hurt people because I could*. Scale reliability was good ($\alpha = 0.93$).

Beliefs, Attitudes, and Intentions

Consistent with Fishbein and Ajzen's reasoned action theory, as well as meta-analyses evaluating the persuasive effects of narratives (e.g., Braddock and Dillard, 2016), in this study, we consider beliefs, attitudes, and intentions to be outcomes indicative of greater persuasion by exposure to stimulus narratives. That is, higher scores on belief, attitude, and intention measures indicate greater persuasion by the passage to which participants are exposed. Details associated with these scales are outlined in the sections below.

Beliefs

Beliefs represent impartial judgments regarding that which we believe to be true and false about the world (Fishbein and Ajzen, 1975). Because they are unvalenced, they are not motivational; they are simply our perceptions of what goes on around us. As such, any measure of beliefs would gauge the degree to which an individual accepts a communicator's account of real-world facts. Accordingly, participants reported the extent to which they agreed with seven items that represented facts contained within the narratives to which they were exposed (1 = strongly disagree) to (7 = Strongly agree). Principal component analysis with oblimin rotation showed that the items represented two correlated sub-scales that, respectively, measured beliefs about the HLA's use of violence (e.g., *I believe that the HLA's attacks are likely to lead to changes that the group hopes for*; $\alpha = 0.76$) and beliefs about the HLA's enemies (e.g., *I believe that the neighboring country is stealing land from the HLA's home territory*; $\alpha = 0.77$) identified in the narrative. Both subscales were used as outcome variables.

Attitudes

In contrast to beliefs, attitudes are valenced judgments about a particular situation or behavior (Ajzen and Fishbein, 1967). Therefore, attitude measures should determine the degree to

[5]One item was removed from this subscale to bring alpha above 0.70.

which participants agree with motivational assertions espoused by a communicator. To measure the extent to which the different narrative stimuli influenced participant attitudes, we asked respondents to indicate the degree to which they agreed with seven statements regarding the HLA's activities and statements (e.g., *The neighboring country deserves to be attacked for what it does;* 1 = strongly disagree to 7 = strongly agree). These items loaded on two factors, with the second factor defined by a single item. Removal of the outlying item yielded a good reliability estimate for the scale comprising the remaining items ($\alpha = 0.88$).

Behavioral Intentions

Intentions represent perceived motivations to engage in specific behaviors. To gauge participants' intentions to act in support of the HLA, we presented them with 10 items of the Activism and Radicalism scale (ARIS; e.g., *If I lived in the HLA's territory, I would consider using deadly weapons against the HLA's enemies;* Moskalenko and McCauley, 2009). All items in the scale loaded on a single factor, the reliability estimate of which was good ($\alpha = 0.93$).

Control Variables

In addition to the measures outlined above, we also measured several constructs that could be included in our analyses as controls, given the degree to which past research has shown them to influence outcomes peripheral to those examined in this study (e.g., risky health behaviors). These indices measured perceptions of general self-efficacy (Schwarzer and Jerusalem, 1995); impulsive sensation-seeking (Zuckerman, 1996); and the composite elements of the Big Five Inventory (see John and Srivastava, 1999): extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience.

RESULTS

The pre-registration of all confirmatory analyses is available at: https://osf.io/hu6z9. All analyses were conducted using SPSS 25.0 and R 4.1.0.

Descriptive Analyses

Table 1 presents the mean values, standard deviations, and bivariate correlations of all assessed variables. Variables that comprise the Dark Tetrad were moderately to highly positively associated. In addition, Dark Tetrad traits were significantly correlated with most outcome variables. Significant associations between the control variables and the dependent and moderator variables verified the rationale for including them in subsequent analyses as controls.

Deviating from the pre-registration, we first conduct two multivariate analyses of variance to determine main effects of the experimental manipulations. The Box test ($M = 12.10$, $p = 0.294$) and Levene test ($0.106 < p < 0.950$) emphasized that parametric tests could be computed. Findings indicated that there were no significant differences between the narrative and control groups with respect to how they influenced participants' beliefs about invaders [$F(1, 268) = 2.01$, $p = 0.16$, $\eta^2 = 0.01$], beliefs about the use of violence [$F(1, 268) = 1.89$, $p = 0.17$, $\eta^2 = 0.01$], attitudes [$F(1, 268) = 0.27$, $p = 0.61$, $\eta^2 = 0.00$], or behavior intentions [$F(1, 268) = 1.70$, $p = 0.19$, $\eta^2 = 0.01$]. See **Table 2** for a synopsis of the data associated with these analyses.

Moreover, there was no significant effect of narrative vividness on salient outcomes [$\text{Beliefs}_{\text{Invaders}}$: $F(1, 268) = 1.01$, $p = 0.37$, $\eta^2 = 0.01$; $\text{Beliefs}_{\text{Violence}}$: $F(1, 268) = 0.95$, $p = 0.39$, $\eta^2 = 0.01$; Attitudes: $F(1, 268) = 0.37$, $p = 0.69$, $\eta^2 = 0.00$; and Behavior intentions: $F(1, 268) = 0.85$, $p = 0.43$, $\eta^2 = 0.01$]. Descriptive data associated with these analyses are summarized in **Table 3**.

Surprising though these findings were, our predictions focused on the interactions between narrative vividness, the Dark Tetrad, and narrative engagement. Moreover, the emergence of interaction effects would supersede any lack of a main effect for narrative condition or vividness. So, given the absence of these main effects, we turned to the moderation analyses that formed the basis of our hypotheses.

Moderated Effects of Narrative Exposure

To assess Hypotheses 1–4, which predicted interaction effects between the Dark Tetrad traits and narrative exposure, we tested all moderation relationships simultaneously for all four outcome variables. Shapiro–Wilk tests highlighted that none of the dependent variables was normally distributed (Beliefs Invaders: $W = 0.975$, $p = 0.000$; Beliefs Violence: $W = 0.984$, $p = 0.004$; Attitudes: $W = 0.981$, $p = 0.001$; and Intentions: $W = 0.969$, $p = 0.000$). To respond to these failed assumption tests, all models were estimated using maximum likelihood estimation with robust (Huber-White) standard errors and a scaled test statistic that is (asymptotically) equal to the Yuan-Bentler test statistic (i.e., MLR estimate for incomplete data).

Specifically, we modeled a path analysis that included narcissism, Machiavellianism, subclinical psychopathy, and everyday sadism, as well as interaction terms between these traits and the experimental conditions (i.e., control vs. any narrative condition) as independent variables; both belief sub-scales, attitudes, and behavioral intentions were the respective dependent variables. Control variables, as well as age and gender, were modeled to predict each respective outcome. Residuals of all Dark Tetrad variables were proposed to be correlated. The model also estimates covariances between all dependent measures.

The aforementioned model did not achieve acceptable fit [$\chi^2(56) = 372.77$, $p = 0.002$, CFI = 0.75, RMSEA = 0.15, SRMR = 0.13]. Control variables, aside from gender and age, were removed from the model as they correlated with the target independent variables of the Dark Tetrad (i.e., the model was at risk of multicollinearity; see **Table 1** for correlations). By removing these variables, the modified model achieved acceptable fit [$\chi^2(28) = 54.34$, $p = 0.002$, CFI = 0.97, RMSEA = 0.06, SRMR = 0.05; $R^2_{\text{BeliefsViol}} = 0.25$, $R^2_{\text{BeliefsInv}} = 0.15$, $R^2_{\text{Attitudes}} = 0.20$, $R^2_{\text{Intentions}} = 0.31$]. **Table 4** reports the results of this analysis.

These results show that Machiavellianism moderates the effect of narrative exposure on beliefs about the HLA's use of violence and attitudes about the HLA. Simple slope analyses demonstrated that participants who reported higher levels of Machiavellianism (as divided by median split) found the HLA's narratives to be more persuasive in terms of beliefs about the

TABLE 1 | Means, SDs, and bivariate correlations.

	Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Narcissism	3.97	0.96	1															
2	Machiavellianism	4.23	1.03	0.36**	1														
3	Subcl. psychopathy	3.25	1.40	0.44**	0.66**	1													
4	Everyday sadism	2.50	1.49	0.31**	0.48**	0.74**	1												
5	Beliefs: Violence	4.05	1.29	0.19**	0.42**	0.38**	0.38**	1											
6	Beliefs: Invaders	4.50	1.24	0.14**	0.33**	0.18**	0.19**	0.51**	1										
7	Attitudes	4.39	1.25	0.12	0.42**	0.28**	0.27**	0.61**	0.64**	1									
8	Intention to support	4.02	1.31	0.27**	0.52**	0.41**	0.38**	0.53**	0.51**	0.75**	1								
9	Self-efficacy	4.35	0.94	0.24**	0.14*	−0.10	−0.15*	0.09	0.15*	0.17**	0.11	1							
10	Thrill seeking	3.05	0.76	0.47**	0.49**	0.59**	0.46**	0.28**	0.12	0.20**	0.33**	0.21**	1						
11	Imp. decision making	3.03	1.02	0.28**	0.26**	0.43**	0.37**	0.16**	0.07	0.11	0.21**	0.06	0.62**	1					
12	Extraversion	3.11	0.70	0.39**	0.01	0.09	0.03	0.05	−0.08	−0.07	0.00	0.34**	0.22**	0.16**	1				
13	Agreeableness	3.69	0.68	−0.12*	−0.35**	−0.56**	−0.62**	−0.17**	−0.07	−0.05	−0.23**	0.45**	−0.31**	−0.25**	0.17**	1			
14	Conscientiousness	3.61	0.69	−0.04	−0.22**	−0.47**	−0.49**	−0.11	−0.00	−0.04	−0.15*	0.51**	−0.33**	−0.34**	0.25**	0.71**	1		
15	Neuroticism	2.82	0.80	−0.02	0.28**	0.38**	0.36**	0.13*	0.11	0.09	0.16**	−0.32**	0.27**	0.27**	−0.39**	−0.58**	−0.64**	1	
16	Openness to experience	3.74	0.70	0.27**	0.18**	−0.03	−0.10	0.01	0.19**	0.12*	0.11	0.60**	0.27**	0.11	0.29**	0.34**	0.35**	−0.08	1

*$p<0.05$; **$p<0.01$.

HLA's use of violence and attitudes toward the HLA more generally than the control message ($m_{\text{BeliefsViol}} = 1.54$, $t = 2.80$, $p < 0.01$; $m_{\text{Attitudes}} = 1.05$, $t = 2.01$, $p < 0.05$; See **Figures 1, 2**). In addition, higher levels of Machiavellianism were associated with higher scores on all outcomes. These results suggest indirect and direct paths by which Machiavellianism can predict audience responses to terrorist narratives.

Moreover, narcissism had a significant positive direct effect on beliefs regarding the invaders in the HLA's messages and their intentions to support the HLA. Everyday sadism similarly exerted a significant positive effect on participants' beliefs about the HLA's use of violence as a form of defense. Neither the effect of narcissism nor sadism were moderated by narrative exposure. Taken together, these results partially support H2, but fail to support H1, H3, or H4.

Moderated Effects of Narrative Vividness

To examine Hypotheses 5–8, we replicated the first set of analyses, but included interaction terms of the Dark Tetrad traits with the experimental condition "narrative vividness." The non-vivid narrative condition was treated as the control condition. As discussed before, we first estimated a model that specified relationships between the control variables and all four dependent variables. Once again, the model did not achieve acceptable fit [$\chi^2(56) = 256.14$, $p = 0.002$, CFI = 0.76, RMSEA = 0.14, SRMR = 0.12]. As in the first model, all control variables aside from gender and age were removed from the model given their potential multicollinearity with the Dark Tetrad variables. Removing the control variables improved model fit to an acceptable level [$\chi^2(28) = 39.14$, $p = 0.079$, CFI = 0.98, RMSEA = 0.05, SRMR = 0.04; $R^2_{\text{BeliefsViol}} = 0.36$, $R^2_{\text{BeliefsInv}} = 0.20$, $R^2_{\text{Attitudes}} = 0.28$, $R^2_{\text{Intentions}} = 0.38$].

Results of this analysis are reported in **Table 5** and **Figure 3**. Foremost, the results further highlighted the importance of Machiavellianism. Slope analyses demonstrated that when exposed to a vivid (relative to a non-vivid) narrative, individuals who rate high on Machiavellianism report beliefs consistent with the HLA's use of violence ($m_{\text{BeliefsViol}} = 1.61$, $t = 2.52$, $p < 0.05$; see **Figure 3**). Results further demonstrated that Machiavellianism moderated the effect of narrative vividness on beliefs consistent with the HLA's use of violence (see **Table 5**). Consistent with the first set of analyses, results also showed that Machiavellianism directly predicted higher levels of all outcomes.

Although everyday sadism did not interact with narrative vividness to predict any outcomes, it did directly predict participant beliefs about the HLA's use of violence and the group's enemies in this analysis.

Taken together, these results offer partial support for H6, but not for H5, H7, or H8.

DISCUSSION

Summary of Results

The goal of this study was to determine whether the traits of the Dark Tetrad moderate the effect of different kinds of terrorist narrative stimuli to enhance their persuasive effects.

TABLE 2 | Properties of study outcomes by narrative condition.

		Beliefs Invaders		Beliefs Violence		Attitudes		Intentions	
Condition	***n***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Narrative	176	4.52	1.29	4.05	1.25	4.38	1.32	4.00	1.34
Control	91	4.47	1.16	4.04	1.37	4.41	1.09	4.05	1.24

TABLE 3 | Properties of study outcomes by narrative vividness.

		Beliefs Invaders		Beliefs Violence		Attitudes		Intentions	
Condition	***n***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Vivid	86	4.58	1.38	4.11	1.41	4.40	1.51	3.94	1.41
Nonvivid	90	4.46	1.19	4.01	1.10	4.36	1.13	4.06	1.28

TABLE 4 | Main and interaction effects of dark tetrad traits and narrative exposure on participant beliefs, attitudes, and intentions.

Variable	Beliefs Invaders		Beliefs Violence		Attitudes		Intentions	
	β	**95% CI**	***β***	**95% CI**	***β***	**95% CI**	***β***	**95% CI**
Sex	0.09	−0.24, 0.42	−0.07	−0.33, 0.19	0.04	−0.26, 0.34	−0.08	−0.38, 0.22
Age	0.01	−0.01, 0.02	0.01	−0.01, 0.03	0.00	−0.02, 0.02	0.00	−0.02, 0.02
Condition (narrative v. control)	0.02	−0.28, 0.31	−0.04	−0.34, 0.26	−0.08	−0.36, 0.20	−0.12	−0.35, 0.11
Narcissism	0.15*	0.01, 0.29	0.11	−0.05, 0.27	0.06	−0.10, 0.22	0.15*	0.00, 0.30
Machiavellianism	0.39***	0.17, 0.61	0.32**	0.10, 0.54	0.46***	0.24, 0.68	0.50***	0.29, 0.70
Subclinical psychopathy	−0.17	−0.37, 0.03	−0.01	−0.21, 0.19	−0.09	−0.29, 0.11	−0.03	−0.26, 0.20
Everyday sadism	0.12	−0.03, 0.28	0.20**	0.06, 0.34	0.12	−0.02, 0.26	0.14	−0.02, 0.30
Narcissism * Exposure	−0.03	−0.19, 0.13	−0.09	−0.26, 0.09	−0.10	−0.28, 0.08	−0.12	−0.30, 0.06
Machiavellianism * Exposure	0.12	−0.11, 0.36	0.28*	0.02, 0.54	0.22**	0.00, 0.44	0.14	−0.10, 0.34
Subclinical psychopathy * Exposure	−0.11	−0.37, 0.15	−0.15	−0.41, 0.11	0.03	−0.23, 0.29	0.01	−0.27, 0.29
Everyday sadism * Exposure	0.11	−0.11, 0.33	0.01	−0.19, 0.21	−0.07	−0.25, 0.11	0.06	−0.14, 0.26
R^2	0.15		0.25		0.20		0.31	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Results indicated that this prediction was largely limited to Machiavellianism. Neither narcissism, subclinical psychopathy, nor everyday sadism moderated the effects of narrative exposure or narrative vividness on persuasive outcomes related to support for the source of terrorist propaganda.

These results highlight the risk in assuming that any form of terrorist propaganda will be universally persuasive. Our findings support the long-held notion that the effectiveness of persuasive messages depends, at least in part, on individual characteristics (Bouhana, 2019). In the next section, we turn to the complexities associated with these findings, as well as their implications for understanding the persuasiveness of terrorist propaganda.

The Appeal of Terrorist Narratives to Machiavellians

Our results showed that those who scored high on the Machiavellianism scale (high-Machs) reported beliefs, attitudes, and intentions consistent with the goals of the terrorist organization, regardless of whether those goals were presented narratively. The interaction between Machiavellianism and narrative exposure also significantly predicted beliefs about the terrorist group's use of violence and attitudes about the terrorist group itself. This effect was even more pronounced when accounting for propaganda vividness, as high-Machs who were exposed to *vivid* narrative propaganda reported beliefs consistent with the terrorist group's use of violence to a significantly greater degree than their low-Mach counterparts. Taken together, these results suggest that Machiavellianism is a key trait within the Dark Tetrad that can shape processing of terrorist narratives.

This was a somewhat surprising finding given that other elements of the Dark Tetrad—subclinical psychopathy and everyday sadism—have typically been more associated with aggression than Machiavellianism (see Mededovic and Petrovic, 2015; Paulhus et al., 2021). However, a closer consideration of Machiavellianism, its correlates, and how they affect goal-directed behavior sheds some light on the result. The association

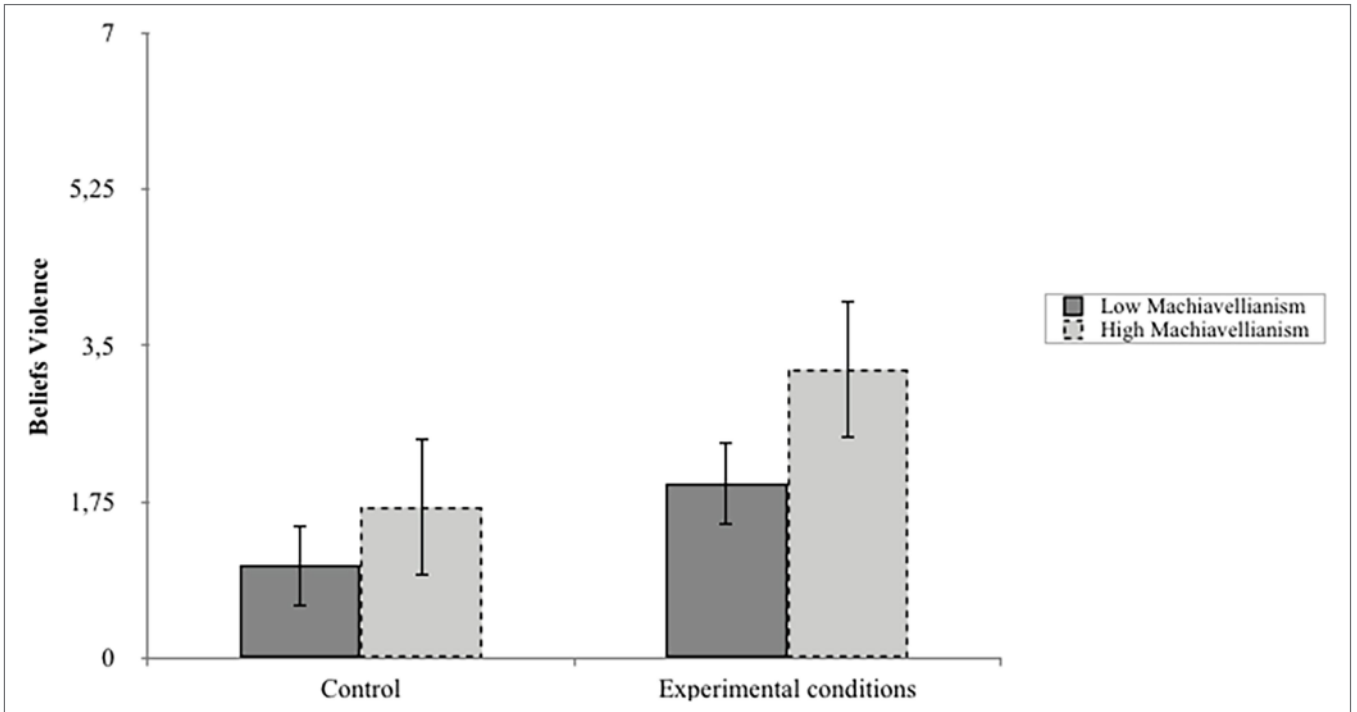

FIGURE 1 | The moderating role of Machiavellianism by narrative exposure on Homeland Liberation Alliance (HLA) Use of Violence.

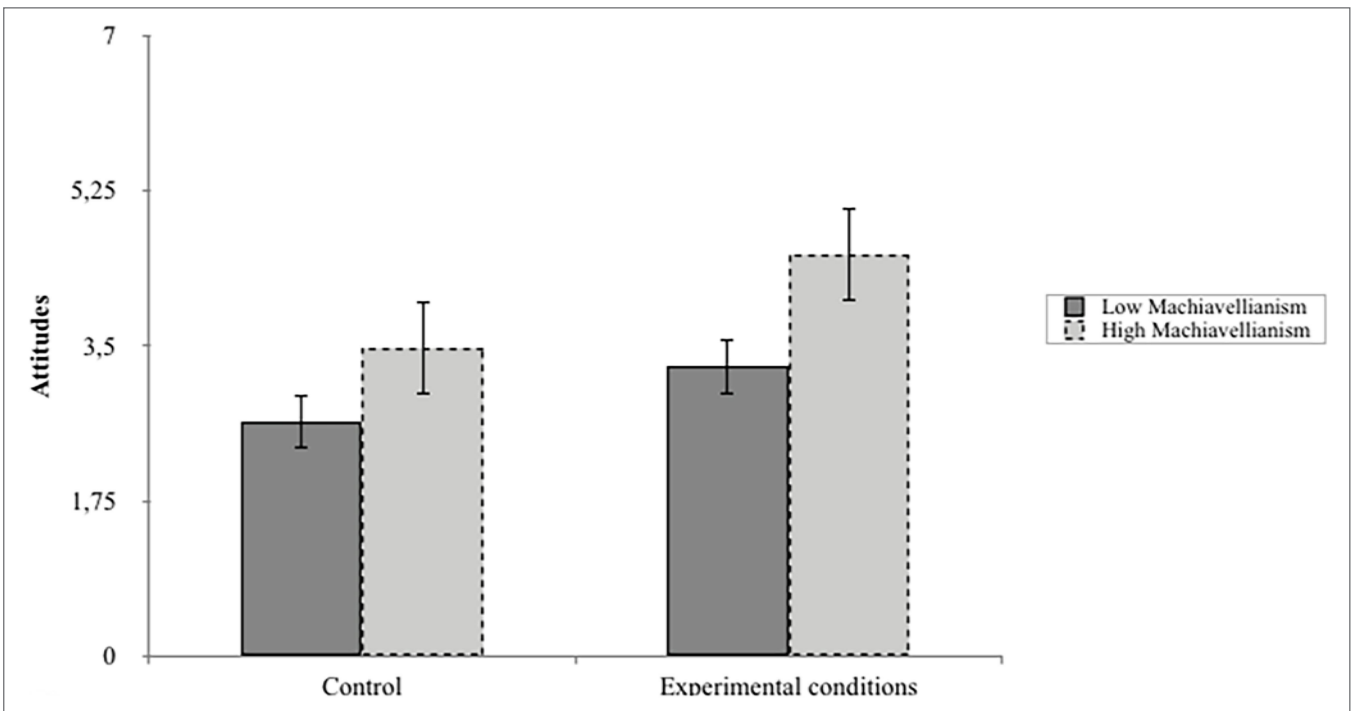

FIGURE 2 | The moderating role of Machiavellianism by narrative exposure on Attitudes about the HLA.

between Machiavellianism and alexithymia, a failure to recognize or understand one's own emotions or how one's behavior might affect others' emotions, may provide some explanation.

Alexithymia relates to a person's tendency to experience their emotions "shallowly," reducing their motivation to act in response to those emotions (see Wagner and Lee, 2008). In

TABLE 5 | Main and interaction effects of dark tetrad traits and narrative vividness on participant beliefs, attitudes, and intentions.

Variable	*Beliefs Invaders*		*Beliefs Violence*		*Attitudes*		*Intentions*	
	β	95% CI	*β*	95% CI	*β*	95% CI	*β*	95% CI
Sex	0.21	−0.15, 0.57	0.13	−0.10, 0.37	0.12	−0.18, 0.42	0.03	−0.27, 0.33
Age	0.01	−0.01, 0.03	0.01	−0.01, 0.03	0.00	−0.02, 0.02	0.01	−0.01, 0.03
Condition (vivid v. nonvivid)	0.22	−0.12, 0.56	0.19	−0.11, 0.49	0.12	−0.22, 0.46	−0.02	−0.32, 0.28
Narcissism	0.08	−0.16, 0.32	0.03	−0.17, 0.23	−0.06	−0.30, 0.18	0.06	−0.14, 0.26
Machiavellianism	0.47***	0.21, 0.73	0.52***	0.30, 0.74	0.61***	0.37, 0.85	0.54***	0.32, 0.76
Subclinical psychopathy	−0.21	−0.47, 0.05	−0.04	−0.30, 0.22	−0.01	−0.27, 0.25	0.03	−0.29, 0.35
Everyday sadism	0.20*	0.00, 0.40	0.20*	0.00, 0.40	0.07	−0.13, 0.27	0.16	−0.08, 0.40
Narcissism * Vividness	−0.21	−0.51, 0.09	−0.18	−0.42, 0.06	−0.29	−0.61, 0.03	−0.08	−0.34, 0.18
Machiavellianism * Vividness	0.05	−0.23, 0.33	0.31**	0.07, 0.55	0.17	−0.09, 0.43	−0.10	−0.32, 0.12
Subclinical psychopathy * Vividness	−0.08	−0.46, 0.30	−0.18	−0.54, 0.18	−0.14	−0.50, 0.22	−0.12	−0.53, 0.29
Everyday sadism * Vividness	0.13	−0.17, 0.43	0.08	−0.20, 0.31	0.14	−0.16, 0.44	0.30	−0.04, 0.64
R^2	0.20		0.36		0.28		0.38	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

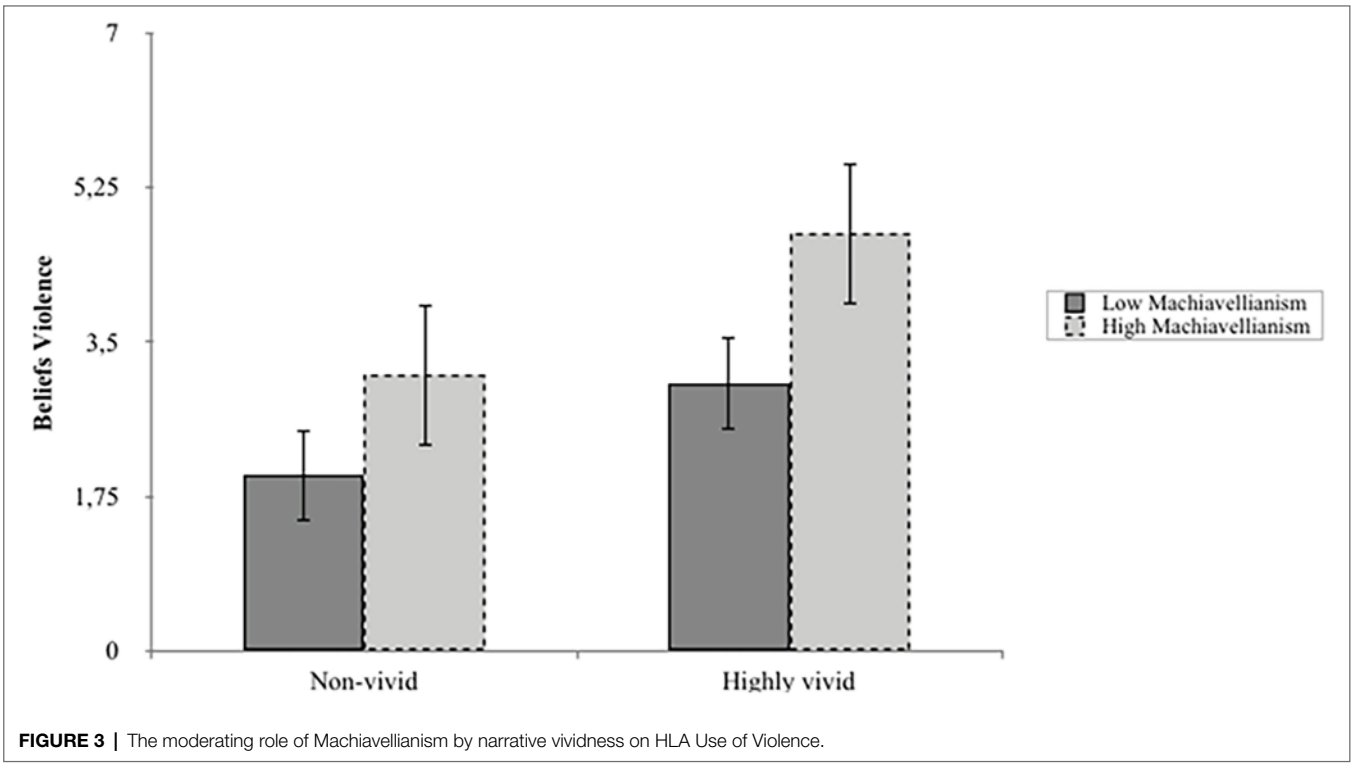

FIGURE 3 | The moderating role of Machiavellianism by narrative vividness on HLA Use of Violence.

the context of the current study, Machiavellianism's direct and indirect effects on persuadability by HLA narrative propaganda may be explained by alexithymia. Specifically, high-Machs may be less able to recognize negative emotions (like guilt or shame) that might result from supporting the views of an extremist group or considering the actions they might undertake on behalf of that group. For instance, in considering the HLA's violent activities, high-Machs may have been less able to perceive vicarious guilt that would normally result from envisioning engaging in violent activities to support the HLA. Given their relative inability to perceive these negative emotions, they may have been more amenable to expressing support for the worldview espoused by the HLA and the group's strategic use of violence. In short, Machiavellians may have been unable to emotionally process the negative implications of the HLA's activities (or their own engagement in those activities), making them less likely to resist persuasion by the narrative propaganda espoused by the group.

Taken together, the results suggest that Machiavellianism enhances susceptibility to messages espoused *via* terrorist narratives. This persuasive susceptibility renders Machiavellians more vulnerable to adopting ideas consistent with vivid terrorist narratives. This fits with many models of radicalization that describe the process as incremental social and psychological change whereby an individual comes to support the use of terrorism (or in some cases, engage in violence themselves; see Horgan, 2014). In this way, Machiavellians may be more prone to radicalization due to persuasion by vivid terrorist narratives.

The Failure of Narcissism, Subclinical Psychopathy, and Everyday Sadism to Moderate the Effects of Narrative Exposure or Vividness

Contrary to expectations, narcissism did not moderate the effect of narrative exposure or narrative vividness on the persuasiveness of the HLA propaganda. Recall that narcissists are characterized by grandiose perceptions of self-worth combined with an insatiable need for reinforcement of their unique qualities. When presented with messages that advocate becoming part of something greater than oneself (as much terrorist propaganda does), narcissists may be averse to the prospect of joining a group that does not feature him/her as the central figure. Indeed, some studies have shown that narcissists are primarily attracted to group membership only when they can rise to leadership (Zitek and Jordan, 2016) or when their joining the group is met with an individual reward (Nevicka et al., 2011). In this way, a narcissist's quest for grandiosity may conflict with the idea of engaging in risky behaviors on behalf of a group when those behaviors are not promoted as personally beneficial.

This may be the case in the current study. The stimulus to which participants were exposed and the questions to which they responded did not mention personal gain. Instead, all outcomes were related to perceptions of the HLA *as a group* and the individual's intention to support it. This finding suggests that narcissism is unlikely to have an effect on the persuasiveness of terrorist narrative propaganda when that propaganda does not mention *individual-based* rewards or opportunities for *individual* glory.

Subclinical psychopathy similarly failed to moderate the relationship between narrative exposure or narrative vividness and persuasion. Though this finding was also unexpected, research on the role of psychopathy in one's preference for group membership and/or group efficacy can be instructive. For instance, Baysinger et al. (2014) demonstrated that when psychopathy is treated as a continuum, it is inversely related to one's perceptions of a group and positively related to group dysfunction. O'Neill and Allen (2014) similarly showed psychopathy to be positively associated with intra-group conflict. Bell (2007) also highlighted that psychopathy was negatively related to conflict resolution and overall group performance. Taken together, the literature indicates that like narcissists (though for different reasons), subclinical psychopaths may be averse to membership in groups that recruit them.

Finally, everyday sadism failed to interact with narrative exposure or vividness to predict the persuasiveness of the narrative stimulus. This non-significant finding was perhaps the most surprising, given that (a) sadists tend to enjoy violent material more than non-sadists (Baumeister and Campbell, 1999; Buckels et al., 2013) and (b) the vividness of the propaganda varied primarily by the degree to which it was graphic in its portrayal of violence. Although this result was surprising, past work on sadism and its psychological correlates may provide some insight into the counterintuitive result. Specifically, past evidence indicates that sadistic tendencies are inversely related to empathy (Erickson and Sagarin, 2021), suggesting that everyday sadists would be less capable of emotionally understanding the tribulations of the HLA's constituents depicted in the stimulus propaganda. As such, it is possible that everyday sadists may have *enjoyed* visualizing the violent scenes depicted in the stimulus narratives; but, without the ability to empathize with the HLA and its constituents, everyday sadists were not sufficiently motivated to adopt beliefs, attitudes, or intentions consistent with their propaganda.

Practical Implications for Preventing Radicalization

In addition to expanding our conceptual understanding of terrorist narratives, the role of personality traits, and the combined effect of both, the findings reported in the current study also offer practical insight for contending with challenges posed by the persuasiveness of terrorist propaganda.

Most notably, our results suggest that Machiavellianism enhances the persuasiveness of narrative terrorist propaganda, particularly when that propaganda features vivid descriptions of narrative events. It is, therefore, critical to identify the kinds of media messages preferred by Machiavellians to (a) recognize when terrorist propaganda may appeal to them, and (b) develop effective counter-messages intended to neutralize the persuasive effects of all kinds of terrorist propaganda. Past work on the Dark Triad and psychological correlates that predict media use has shown that Machiavellianism is strongly related with sensation-seeking (Lu, 2008; Dickey, 2014). For its part, sensation-seeking has been empirically linked to a preference for content that is novel and unpredictable, and arouses sensory and affective responses (Donohew et al., 1991; Stephenson and Southwell, 2006; Wang et al., 2015).

Identification of these links allows us to better understand and target high-Machs. Specifically, in developing narrative content intended to challenge terrorist narrative propaganda (see Braddock and Horgan, 2016), it may be useful to imbue that content with vivid descriptions of narrative events to arouse sensory and affective responses that reduce the appeal of terrorist narratives. In this way, developers of narratives intended to challenge terrorist narrative propaganda can leverage the sensation-seeking tendencies of Machiavellians to render their counter-narratives more persuasive.

Despite the practical utility of targeting high-Machs with messages that are tailored to undermine the persuasive appeal of terrorist narratives, it may be difficult to identify and isolate these audiences without a nuanced analysis that gauges the personality dispositions of audiences. To the degree that future

research is successful in identifying methods for doing so, counter-messages targeting narcissists and high-Machs can be better constructed to resonate with their intended audiences.

Limitations and Future Research

Although the present study has implications for our understanding of how terrorist propaganda can influence its intended audiences, our findings are qualified by some limitations that can also be addressed in future research. First, we used only a single, text-based stimulus in testing the moderating effects of narrative exposure and vividness on propaganda persuasiveness. The use of this stimulus provides preliminary insight, but future work can expand this understanding through the use of stimuli characterized by different ideological focus and presented using different media.

The subtle differences in how video-based narratives are processed relative to text (see Shen et al., 2015; Braddock and Dillard, 2016), coupled with the fact that most terrorist narratives are consumed *via* engagement with content on interactive digital media (Ashraf, 2021), demands that future work in this domain evaluate potential interactions between personality traits like the Dark Tetrad and video-based terrorist narrative processing to evaluate persuasive efficacy. For instance, personality traits that favor intense visual stimuli may respond differently under these conditions.

In a similar sense, future research should also evaluate the interactions between personality and narrative features using extremist narratives of a different focus. We chose the stimulus narrative used in the current study because emphasis—the victimization of the extremist group's adopted constituents (i.e., civilians in HLA territory)—is a common theme in the narrative propaganda of a wide variety of groups. To be sure, several researchers have shown that perceptions of victimization increase one's vulnerability of radicalization to violence (see Maly et al., 2013; Braddock, 2015; Kharroub, 2015; Van Den Bos, 2018; Jensen et al., 2020). Still, other kinds of narratives can have a similar effect. Future work in this domain would benefit from investigating these other types of narratives.

Moreover, we specifically created the source of the narrative stimuli (i.e., the HLA) such that no participants would feel an *a priori* affinity for the group, its cause, or its activities. Specifically, we described the source of the message to be geographically and culturally ambiguous. This decision had two key strengths. First, it controlled for any effects resulting from perceived geographic proximity or cultural affiliation with the source of the narratives before being exposed to them. Second, and most critically, it allowed us to avoid inadvertently persuading any participants about a *real* group's ideology. These essential controls came at a cost; however, in real-world scenarios, it is likely an individual's affinity for the source of a terrorist narrative would affect the persuasiveness of that narrative. Consider, for example, that terrorist narratives are often designed to elicit feelings of sympathy and perceptions of similarity and inclusion with the group that produces the message (see Corman and Schiefelbein, 2008; Corman, 2011). These outcomes are closely related to the persuasive efficacy of strategic messaging, meaning that without naming the author of the propaganda, there is no group to which audiences can feel sympathy, perceive similarity, or imagine inclusion.

Unfortunately, ethical concerns associated with the potential radicalization of participants precluded us from exposing them to narrative propaganda from real groups (to which they may have natural inclinations). As such, our results are limited in that they do not account for the potential effect of *a priori* affinity for a group on narrative persuasiveness. Future research in this domain would benefit from exploring this relationship, though it is likely to remain difficult to incorporate narrative propaganda from real groups into experimental research. Case analyses of specific terrorist narrative messages may be useful in this regard.

There were also psychometric considerations that may be addressed in future research. First, although the ARIS scale was conceptualized as comprising two factors (activism and radicalism), the scale was largely unidimensional in our data. This may be expected when measuring intentions with respect to terrorism, as all related activities may be perceived as non-normative and radical. However, future research may benefit from using a less overtly terroristic propaganda source to determine whether intentions derived from terrorist narrative exposure are, in fact, unidimensional. Finally, as expected, there were high correlations between the elements of the Dark Tetrad. Although this may raise alarms related to collinearity, we effectively accounted for these correlations in our predictive models.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Institutional Review Board Office of Research Protections, The Pennsylvania State University University Park, PA, United States. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

AUTHOR CONTRIBUTIONS

KB contributed to the conceptualization of the study, literature review, data collection and analysis, and writeup. SS contributed to data analysis and interpretation, as well as writeup. EC and PG contributed to data interpretation and writeup. All authors contributed to the article and approved the submitted version.

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EDITED BY
John Morrison,
Royal Holloway, University of London,
United Kingdom

REVIEWED BY
Rebecca Totton,
Amherst College,
United States
Roberto Muelas Lobato,
University of Granada,
Spain

*CORRESPONDENCE
Sandy Schumann
s.schumann@ucl.ac.uk

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Assessing the relationship between terrorist attacks against ingroup or outgroup members and public support for terrorism

Sandy Schumann*, Bettina Rottweiler and Paul Gill

Department of Security and Crime Science, University College London, London, United Kingdom

Terrorist groups rely on constituency support for their long-term survival. Here, we examined the extent to which terrorists' own activities are related with public opinion on terrorism. Specifically, we assessed whether more frequent and more costly terrorist attacks against the ingroup are associated with war weariness or retaliatory sentiments, thus, either weaker or stronger approval of terrorism. We further investigated if more frequent and costly attacks that target an outgroup predict higher levels of justification of terrorism. Lastly, we identified the timeframe during which domestic and outgroup terrorist attacks correlate with (lower or higher) public support. The analyses focused on Jordan (ingroup) and Israel (outgroup), over an 8-year period (2004–2011), drawing on data from the Pew Global Attitudes Survey and the Global Terrorism Database. Results showed that support for terrorism in Jordan decreased in 2005 and, again, in 2008. The frequency of terrorist attacks and fatality/injury rates in Jordan did not vary significantly during the study period. The number of attacks and fatalities/people injured in Israel, however, changed between 2004 and 2011. Cross-correlations of the time-series further demonstrated that the number of attacks and fatalities/people injured in Jordan was not related with the level of public approval of terrorism in the country. Importantly, and in line with the literature, the casualty rate in Israel was positively associated with support for terrorism in Jordan, in the next year. That is, there is evidence that more/less costly terrorist attacks on an outgroup can predict stronger/weaker public support for the tactic relatively quickly. Those findings provide insights for counter-terrorism measures.

KEYWORDS

public opinion, terrorism, war weariness, outgroup violence, time-series

Introduction

"*The strongest weapon which the mujahedeen enjoy … is popular support from the Muslim masses in Iraq, and the surrounding Muslim countries. So we must maintain this support as best we can, and we should strive to increase it … In the absence of this popular support, the Islamic mujahed movement would be crushed in the shadows … The mujahed*

movement must avoid any action that the masses do not understand or approve" (letter from Ayman al-Zawahiri to Abu Musab al-Zarqawi, who later led ISIS, released in October 2005; Global Security, 2005).

In the above quote, Al Qaeda's former leader outlined that the success of the group's plans at the time—defeating the U.S. Army in Iraq and establishing an Islamic Caliphate—depended on whether the public in Muslim-majority countries sympathizes with Al Qaeda. Cognizant that public opinion would be affected by Al Qaeda's choice of tactics, al-Zawahiri insisted that the group should refrain from activities that could potentially diminish approval (see Sharvit et al., 2015). Although perhaps counter-intuitive, this position is unsurprising. To operate efficiently over a long period, terrorist groups rely on symbolic support (Mor, 1997; Paul, 2009; Schmid, 2017), that is, the public justifying acts of terrorism or endorsing terrorist groups and their actions. High, stable levels of public approval of terrorism in a territory can serve as an indicator of the perceived legitimacy of terrorist actors (Kruglanski and Fishman, 2006) and suggests the scale of the radical milieu (Malthaner and Waldmann, 2014) or complicit surround (Richardson, 2006) from which supporters can be drawn, enhancing the chance to establish and sustain (political) power (Bueno de Mesquita, 2005).

Several individual-level characteristics (e.g., religiosity, age, and gender) have been found to be associated with public support for terrorist activities (Fair and Shepherd, 2006; Tessler and Robbins, 2007). Less is known about the role of macro-level factors, namely, how terrorists' own actions influence public opinion. Additionally, while it has been proposed that support for terrorism weaned since the early 2000s, systematic analyses of trends over time are rare (Pew Research, 2005; Wilke and Samaranayake, 2006; Lipka, 2017). A small number of longitudinal studies investigated the (oftentimes mobilizing) impact of attacks against outgroup members on public support for terrorism (e.g., Bloom, 2004; Jaeger et al., 2010, 2012; Sharvit et al., 2015). It remains, however, untested how domestic terrorist activities shape the approval of terrorism (Bueno de Mesquita and Dickson, 2007).

We aim to advance the current literature in three important ways. First, focusing on one Muslim-majority country—Jordan—we apply time-series analysis to investigate whether public approval of terrorism has indeed decreased between 2004 and 2011 (Pew Research, 2005; Wilke and Samaranayake, 2006; Lipka, 2017). Second, we test the association between terrorist activities and the observed trend in public opinion. Specifically, drawing on research that explored effects of exposure to violence (Berrebi and Klor, 2006; Jaeger et al., 2012; Canetti et al., 2017; Brouard et al., 2018; Aytaç and Çarkoğlu, 2021; Kupatadze and Zeitzoff, 2021; Godefroidt, 2022), we assess if more frequent and more costly (i.e., incurring more fatalities and injuries) domestic terrorist attacks predict the expected *decrease* in public support for terrorism in Jordan. Furthermore, we conceptually replicate previous work and determine the extent to which terrorist attacks that inflict more harm on an outgroup—here, Israel—are related with *stronger* approval of terrorism. Finally, we aim to clarify in which timeframe public opinion on terrorism is associated with the frequency and casualty rate of both domestic and outgroup attacks.

Background

Previous research unanimously concluded that the majority of the public does not endorse terrorism (e.g., Tessler and Robbins, 2007; Pew Research Center, 2011; Poushter, 2015; Lipka, 2017; Schmid, 2017) and is highly concerned about extremism (Poushter, 2015). Differences in approval rates were documented when considering specific terrorist groups and their targets. For example, a 2014 poll showed that approximately one third of respondents in Kuwait, Saudi Arabia, and the United Arab Emirates reported very positive or fairly positive views of the Muslim Brotherhood. Support for ISIS ranged, in the same populations, between 3 and 5% (Pollock, 2014). Public support was also lower for terrorist attacks that targeted civilians compared to those targeting the U.S. military (Medoff and Ciolek, 2009; Shafiq and Sinno, 2010). Importantly, attacks against an outgroup were justified more strongly than attacks against ingroup members (Kaltenthaler et al., 2010).

The aforementioned findings rely on cross-sectional analyses and, therefore, represent snapshots of attitudes at a certain moment. As with all opinions, approval of terrorism is expected to change over time (see the Almond-Lippman consensus; Holsti, 1992). Notably, the Pew Global Attitudes Survey, which tracks indicators of endorsement of terrorism in several countries, indicated that (a) views of Hezbollah became increasingly unfavorable in five countries in the Middle East between 2007 and 2014, (b) approval of Hamas decreased among Palestinians in the same period, and (c) Osama bin Laden's stock was reduced between 2003 and 2011 (Pew Research Center, 2011; Pew Research, 2014). Indeed, publications by the Pew Research Center have stipulated repeatedly that support for terrorism has decreased, especially in Muslim-majority countries, since the early 2000s (Wilke & Samaranayake, 2006; Pew Research Center, 2011; Lipka, 2017). However, these conclusions were, to our knowledge, not based on inferential statistical analyses. As such, it is unclear whether the observed differences in levels of support were not simply random variations, that is, neither statistically significant nor practically meaningful.

Documenting a decline in public support for terrorism is, of course, desirable. Equally important is understanding the factors that facilitate such a development. Previous research has highlighted the potential impact of terrorist activities that inflicts harm on an outgroup. More precisely, Jaeger et al. (2010) demonstrated that attacks that were committed by Hamas against Israeli targets predicted stronger public endorsement of the group among Palestinians (see also Bloom, 2004; Brym and Araj, 2008 failed to endorse this conclusion). Replicating this result, Sharvit et al. (2015) showed that, over the course of 6 years, a higher number of attacks targeting Israel was associated with stronger Palestinian public support for suicide bombings.

Modeling and simulation studies (Bueno de Mesquita and Dickson, 2007; Siqueira and Sandler, 2007) further suggest that support for terrorism can increase following domestic terrorist campaigns. Terrorist attacks may be used strategically to elicit government responses that the public—in particular those who terrorists seek to act for or who are already inclined to support terrorism—perceive to be out of proportion (*propaganda of the deed*; Bueno de Mesquita and Dickson, 2007). Aggrieved populations are then expected to endorse terrorist groups more strongly because counter-terrorism efforts affect them negatively. Specifying the potential implications of exposure to domestic terrorism, Hazlett (2020), drawing on Posen (1993), noted that experiences of violence convey that one's community is victimized and that the enemy cannot be trusted. To defend oneself and the ingroup against those who could strike again, individuals justify further retaliatory action (see Hayes and McAllister, 2001; Canetti et al., 2017). Emotions—notably, the action-oriented emotion anger—were found to drive the association between exposure to violence and approval of further aggression (Lerner et al., 2003; Small et al., 2006; Hirsch-Hoefler et al., 2014; Fisk et al., 2019; Jost, 2019; Shandler et al., 2021). In line with this rationale, exposure to violence by foreign actors facilitated hardline foreign policy attitudes (Kupatadze and Zeitzoff, 2021) and negative opinions about an outgroup (Beber et al., 2014). Domestic terrorist attacks also fostered voting for right-wing political parties as well as agreement with more aggressive security policies (Berrebi and Klor, 2006; Bonanno and Jost, 2006; Hetherington and Suhay, 2011; Brouard et al., 2018; Jost, 2019; Aytaç and Çarkoğlu, 2021). Fielding and Penny (2009) further showed that support of the Oslo accord and the peace process decreased among Israelis following a rise in the number of attacks from Gaza and/or more Israeli fatalities. Support for the peace negotiations declined immediately after the attacks and remained low for 1 month. Moreover, Israeli violence that incurred Palestinian fatalities was associated with a reduction in support for moderate Palestinian political actors (i.e., Fatah) 1 month after the violence occurred. These effects were no longer identified after 2 months (Jaeger et al., 2010, 2012).

Thus far, it could be concluded that experiences of violence targeting either the outgroup or ingroup beget a stronger justification of violence. The *war weariness hypothesis* (Richardson, 1960), however, proposes an alternative account: those who are exposed to the destructive impact of conflict, high casualties or economic costs, are expected to endorse peaceful relations with conflict partners and be less sympathetic toward activities that prolong the violence (Gould and Klor, 2010; Blair et al., 2013; Zeitzoff, 2014). Underlying the rejection of violence should be feelings of threat (Huddy et al., 2003, 2005; Rubin et al., 2005). Specifically, while perceived collective threat likely increases calls for counter-aggressions, perceived personal threat predicts the recognition of compromises (Canetti et al., 2017). Indeed, support for militant groups in Pakistan was reduced when experiences of the costs of a conflict were more salient (Blair et al., 2013). Additionally, support for the insurgency that erupted after the U.S.-led invasion of Iraq in 2003 declined once attacks became deadlier and more frequent (Ciolek et al., 2006; Hafez, 2006).

The present research

Taken together, there is evidence that public support for terrorism fluctuates over time, influenced by terrorist attacks that target an outgroup (e.g., Jaeger et al., 2010; Sharvit et al., 2015) as well as by domestic terrorist attacks (e.g., Bueno de Mesquita and Dickson, 2007; Hetherington and Suhay, 2011; Jost, 2019; Hazlett, 2020). The present study aims to build on and extend these insights. We focus on Jordan—the reference ingroup—and Israel, the outgroup. This choice of study context was guided by pragmatic and conceptual reasons. As will be described in more detail below, Jordan is one of two countries (the other being Turkey) for which data on public support for terrorism are available over an 8-year period. This relatively long time-series allows us to draw more robust conclusions about trends in public opinion. In addition, given Jordan's historical experiences as well as demographic make-up, an unambiguous outgroup—Israel—could be identified. In 1994, the Israel-Jordan peace treaty was signed to end more than 4 decades of tense relationships and war between the countries. Jordan is also home to approximately 2 million Palestinian refugees. The Palestine Liberation Organization, indeed, led its activities in the 1960s from Jordan and was later driven out of the country. Hamas was also based in Jordan in the 1990s.

Applying time-series analysis, our research examined, first, if support for terrorism declined in Jordan between 2004 and 2011 (*Hypothesis 1*). Doing so, we provide first systematic empirical evidence of changes in public opinion on terrorism that extends beyond the mere inspection of raw data (see Wilke and Samaranayake, 2006; Pew Research Center, 2011; Lipka, 2017). Second, we investigate whether and how *domestic terrorist activity in Jordan* predicts the temporal fluctuation in public opinion. Specifically, we assess the extent to which a higher frequency and casualty rate of domestic terrorist attacks is associated with a reduction (*Hypothesis 2*) in public support for terrorism. Our analyses advance previous research that focused only on individual-level risk factors of the justification of terrorism (Fair and Shepherd, 2006; Tessler and Robbins, 2007). Considering a novel outcome variable, we also contribute to accounts that postulated either war weariness or retaliatory sentiments as a result of exposure to violence (Berrebi and Klor, 2006; Jaeger et al., 2012; Canetti et al., 2017; Brouard et al., 2018; Aytaç and Çarkoğlu, 2021; Kupatadze and Zeitzoff, 2021). Third, we determine if more frequent and more costly *attacks on an outgroup* (Israel) are associated with stronger endorsement of terrorism (*Hypothesis 3*). This analysis conceptually replicates a small number of studies conducted in the context of the Palestinian-Israeli conflict (Jaeger et al., 2010; Sharvit et al., 2015). Finally, we establish the timeframe

in which domestic terrorist attacks or attacks that target an outgroup predict public approval of terrorism (*Research Question 1*). To our knowledge, only two studies have thus far explored this temporal pattern (Fielding and Penny, 2009; Jaeger et al., 2012), both pointing to immediate, short-term effects of terrorist activity on public opinion. We complement this work with evidence from a different study context to conclude whether terrorist attacks serve as a sustainable, or short-term, means to either attenuate or facilitate support for terrorism.

Materials and methods

Our analyses were based on data from five time-series, described below. Each time-series was defined by eight time points with lags of 1 year (i.e., annual data from 2004 to 2011). Measures reflect the same operationalization of an indicator or same survey question at every wave.

To examine *public support for terrorism in Jordan*, we relied on the Pew Global Attitudes Survey (PGAS), a multi-country multi-wave public opinion survey. The PGAS was collected from 2002 to 2014. No data were available for 2003 and 2012. To allow for regular, 1-year lags in the time-series, data from 2002, 2013, and 2014 were excluded from the present research. The Pew Global Attitudes Survey is not a panel study, and new probability samples were drawn at each wave. However, samples in Jordan are representative of the adult population (i.e., representing 80% of the adult population). Thus, the public opinion data that defines the time-series is reliable at the aggregate level. At each wave, we excluded respondents who did *not* state that their religion was Islam (Table 1). This choice was informed by the phrasing of the public opinion measure, which made reference to the defense of Islam. Based on this exclusion criterium, on average $N = 967$ responses were considered in each wave.

The PGAS captures public support for terrorism with the following item: "Some people think that suicide bombing and other forms of violence against civilian targets are justified in order to defend Islam from its enemies. Other people believe that, no matter what the reason, this kind of violence is never justified. Do you personally feel that this kind of violence is often justified to defend Islam, sometimes justified, rarely justified, or never justified?" Respondents could also indicate that they "do not know" or preferred not to answer the question. To prepare the data for further analysis, we first calculated in each wave the percentage of Muslim respondents who had endorsed each of the six answer options—"often," "sometimes," "rarely," and "never justified" as well as "Do not know" and "refusal to answer" (Supplementary Material S1). Second, the sum of the percentages of respondents who reported that terrorism was either "often," "sometimes," or "rarely justified" was computed to reflect how many expressed that terrorism was "ever justified" (Table 2; see Fair and Shepherd, 2006). Doing so, respondents who refused to answer or stated that they did not know the answer were treated equal to those who stated that they considered terrorism as "never justified." We adopted this approach as it ensured that the ratio of respondents who indicated that terrorism was "ever justified" was not artificially inflated.

TABLE 1 Overview of the number of responses per wave based on respondents' religion.

Religion	2004	2005	2006	2007	2008	2009	2010	2011
Muslim (included)	964	967	972	965	968	963	968	971
Christian (excluded)	36	33	28	35	32	37	32	29

TABLE 2 Public support for terrorism in Jordan per wave.

Public opinion	2004	2005	2006	2007	2008	2009	2010	2011
Terrorism is "ever justified"	94.8%	87.9%	56.4%	49.5%	53.9%	37.6%	45.2%	43.4%
Terrorism is "never justified"	2.5%	11.1%	43.1%	42.4%	40.9%	56%	53.8%	54.6%

Values are rounded.

To explore the implications of *domestic and outgroup terrorist attacks*, we took into account the overall number as well as the casualty rate (i.e., number of people killed or injured) of attacks. Indeed, it is perhaps not attacks *per se* but rather their costs that shape sentiments of perceived threat or anger (Getmansky and Zeitzoff, 2014; Huff and Kertzer, 2018) and, thus, predict public opinion. Additionally, it may be argued that attacks are more salient if they are more costly. By separating data on attack frequency and costs, we were able to acknowledge these dynamics. We identified the *number of terrorist attacks* (Table 3), *fatalities and injuries* (Table 4) in Jordan and Israel by relying on the Global Terrorism Database (2020) (GTD; all data were created using the same event classification method). We only considered incidents that aimed at attaining a political, economic, religious, or social goal. Ambiguous and unsuccessful attacks were extracted as well. We further examined the RAND Database of Worldwide Terrorism Incidents (2021) (RDWTI) to verify information from the GTD till 2010, after which no data are available in the RDWTI. For Jordan, the number of attacks and casualties reported in both databases largely aligned. For Israel, however, data varied, with the RDWTI presenting a substantially higher number of attacks and fatalities. Additionally, we explored a recently released dataset that focuses specifically on jihadist attacks in Jordan (Gråtrud, 2021); here, more attacks were recorded than in the GTD. However, no data that relied on the same coding protocol are available for Israel. In order to conduct the analyses for both countries with comparable data, we used the GTD data. We acknowledge that these numbers may represent a conservative estimate. The hypotheses proposed a lagged relationship between domestic or outgroup terror attacks and public opinion. To reflect this rationale, we took into account the period in which the

TABLE 3 Number of attacks in Jordan and Israel per wave.

Country	2004	2005	2006	2007	2008	2009	2010	2011
Jordan	0	0	3	1	0	0	1	1
Israel	37*	25	44	55	76	129	8	16

This data were based on incidents that occurred between February 23, 2003 and February 22, 2004. No PGAS was collected in 2003. The cut-off data of the 23rd February was chosen based on when data collection took place in 2004.

TABLE 4 Number of people injured/killed (combined score) in Jordan and Israel per wave.

Country	2004	2005	2006	2007	2008	2009	2010	2011
Jordan	0	0	163	7	0	0	0	5
Israel	726*	227	236	185	61	261	19	14

This data were based on incidents that occurred between February 23, 2003 and February 22, 2004. No PGAS was collected in 2003. The cut-off data of the 23rd February were chosen based on when data collection took place in 2004.

PGAS was administered in each year and then considered the attacks that had occurred between that and the previous data collection phase (see Supplementary Material S2 for details). For instance, in 2005, the PGAS was run between May 3 and May 24; in 2004, data were collected between February 24 and 29. Attack data that were matched with opinion data from 2005, therefore, included actions that took place between March 1, 2004 and May 2, 2005.

Results

The code to reproduce the analyses as well as the raw data of public opinion are presented in the Supplementary Materials S1, S3. All analyses were conducted with *R* 3.6.3, and relevant packages are specified in the analysis scripts.

Analytical approach

The analytical approach encompassed three steps. First, we examined whether and how public support for terrorism in Jordan changed during the study period. Second, we assessed the temporal variation of the frequency of terror attacks as well as the resulting number of fatalities/injuries, both in Jordan and Israel. Third, we tested the extent to which the five time-series (public opinion and frequency of terror attacks in Jordan, public opinion and frequency of terror attacks in Israel, public opinion and casualties in Jordan, public opinion and casualties in Israel) were correlated.

More precisely, in step one and two, we sought to identify the structure underlying the time-series data. Our hypotheses presumed a variation in public opinion predicted by variation in the number of terror attacks or fatalities/people injured. To detect the nature of these temporal variations, we compared three alternative data structures and determined which one offered the best fit (or smallest discrepancy) from the observed data (Kleinberg et al., 2020). We fitted an intercept-only model, a linear temporal trend model, and a structural breakpoint model for each time-series. The intercept-only model assumed that, for instance, public support for terrorism did not change during the study period (i.e., the regression coefficient in the model was zero). The linear trend model stipulated a strictly linear progression with a stable non-zero regression coefficient. The structural breakpoint model proposed *n* structural breaks at which the non-zero regression coefficient changed significantly, that is, significant points of change in the trend of opinion, attack frequency, or casualty rate. The number and position of the breakpoints in the time-series was not pre-determined. To extract this information, Bayesian Information Criterion (BIC) plots were examined and the breakpoint model (as well as the other two models) were plotted against the observed data (Zeileis et al., 2003). The three models are non-nested. They were therefore compared using the Akaike's Information Criterion (AIC; Akaike, 1974), BIC, as well as the mean absolute error (MAE), and the root mean squared error (RMSE). Better model fit, that is, less discrepancy from the observed data, was indicated by lower AIC, BIC, MAE, and RMSE values.

To explore whether, and in which way, the number of terrorist attacks and casualty rates in Jordan and Israel predicted public support for terrorism in Jordan, we first established whether the time-series were stationary. A stationary time-series suggests that the properties that generate the structure of the time-series remain stable over time such that the distribution of the data does not change when time passes. The Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test was conducted. The KPSS test examines the null hypothesis that the time-series is level stationary. Finally, we calculated the cross-correlation between the respective stationary time-series. The cross-correlation function also specifies the lag of the relationships, that is, whether detected associations are present at the same or across specific waves. When interpreting the lag, we considered that data was structured such that attack frequency/fatality rates stated in the same wave as PGAS data referred in fact to events that occurred (approximately) over the previous year. To further determine the direction of the relationship indicated through the cross-correlation, the Granger causality (Granger, 1969) was then examined. Granger causality tests determine whether past values of one time-series allow, or rather improve, the forecasting of another time-series, beyond past information of the dependent series (Barnett and Seth, 2014).

Assessing changes in public support for terrorism over time

Table 5 highlights that a breakpoint model fitted the data of public support for terrorism best. The MAE of 3.05 suggests that the average discrepancy between the observed data and values predicted by the breakpoint model is 3.05%. The BIC plot further demonstrated two structural breakpoints (Figure 1B). Plotting the intercept-only, linear and breakpoint models against the observed data revealed that the structural breaks occurred in 2005 and 2008 (Figure 1A). The percentage of people who reported that suicide

TABLE 5 Model fit for all time-series.

Time-series	Model	AIC	BIC	MAE	RMSE
Terrorism is "ever justified"	Intercept-only	74.46	74.62	16.38	19.78
	Linear	65.57	65.81	9.24	10.02
	Breakpoint (2)	**49.10**	**49.42**	**2.92**	**3.16**
Number of terrorist attacks	**Intercept-only**	**26.17**	**26.35**	**0.75**	**0.97**
Jordan	Linear	28.16	28.40	0.73	0.97
	Breakpoint (0)	26.40	26.64	0.5	0.87
Number of fatalities/people	**Intercept-only**	**90.35**	**90.51**	**35.28**	**53.40**
injured Jordan	Linear	91.89	92.13	33.81	51.90
	Breakpoint (0)	90.34	90.58	28.97	47.11
Number of terrorist attacks	Intercept-only	84.27	84.42	28.28	36.52
Israel	Linear	86.26	86.5	28.08	36.50
	Breakpoint (2)	**74.39**	**74.71**	**12.13**	**15.34**
Number of fatalities/people	Intercept-only	112.58	112.74	146.38	214.26
injured Israel	**Linear**	**107.29**	**107.53**	**115.27**	**135.88**
	Breakpoint (1)	109.16	109.39	135.88	152.67

The model that provides the best fit is highlighted in bold.

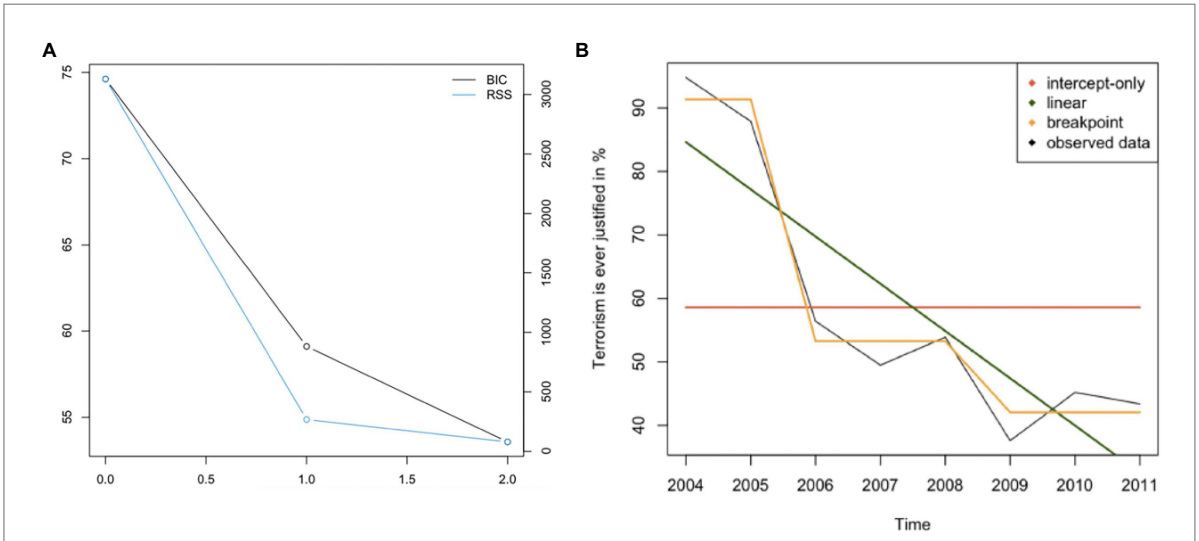

FIGURE 1
Panel **(A)** – BIC plot, Panel **(B)** - Plotting observed data and models for the time-series "Terrorism is ever justified."

terrorism was "ever justified" dropped between 2005 and 2006 from 87.9 to 56.4% and again in 2008 from 53.9 to 37.6% (in 2009). From 2009 onwards, the level of justification of terrorism remained at a lower level (see Table 2). Hypothesis 1 was not rejected.

Assessing changes in the frequency and casualty rate of terrorist attacks

Considering the *number of terrorist attacks in Jordan*, model fit indices indicated that the intercept-only model provided the best fit (Table 5; Figure 2); there were no significant changes in the number of attacks over the 8 years. Next, we applied the same procedure to the time-series of *number of fatalities/injuries in terrorist attacks in Jordan*. Upon initial inspection, the breakpoint model achieved the best fit. However, the BIC plot highlighted that no breakpoints were identified (Figure 3A). Therefore, it was concluded that the more parsimonious intercept-only model represented the observed data best (Table 5; Figure 3B).

For *Israel*, the breakpoint model with two breaks offered the best fit to describe the development of *number of terrorist attacks* over time (Figure 4). Significantly more events were recorded between 2007 and 2008 than in the previous year; there were fewer incidents between 2009 and 2010 than

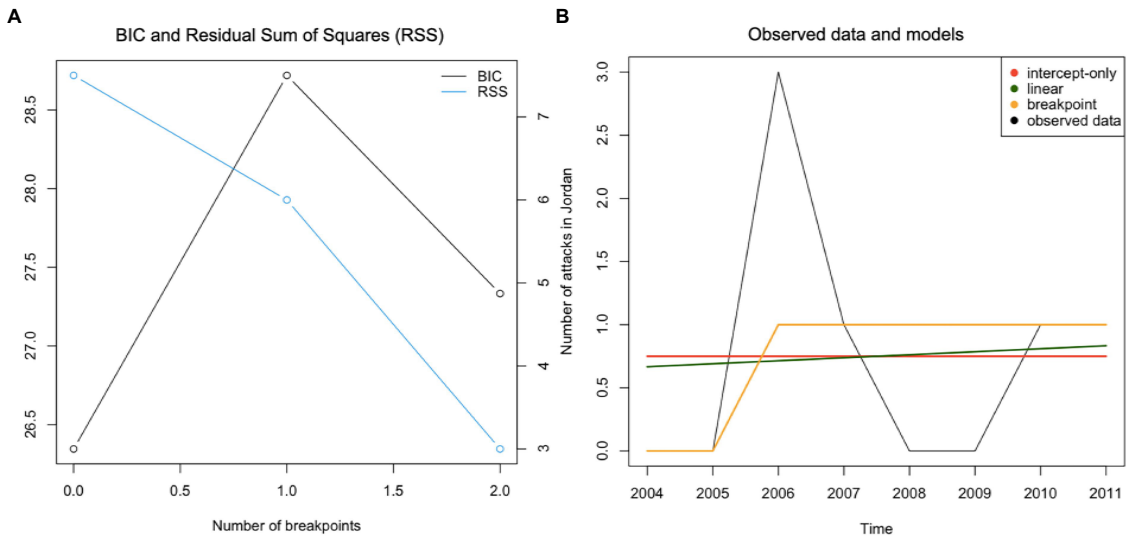

FIGURE 2
Panel **(A)** – BIC plot, Panel **(B)** - Plotting observed data and models for the time-series "Number of attacks in Jordan."

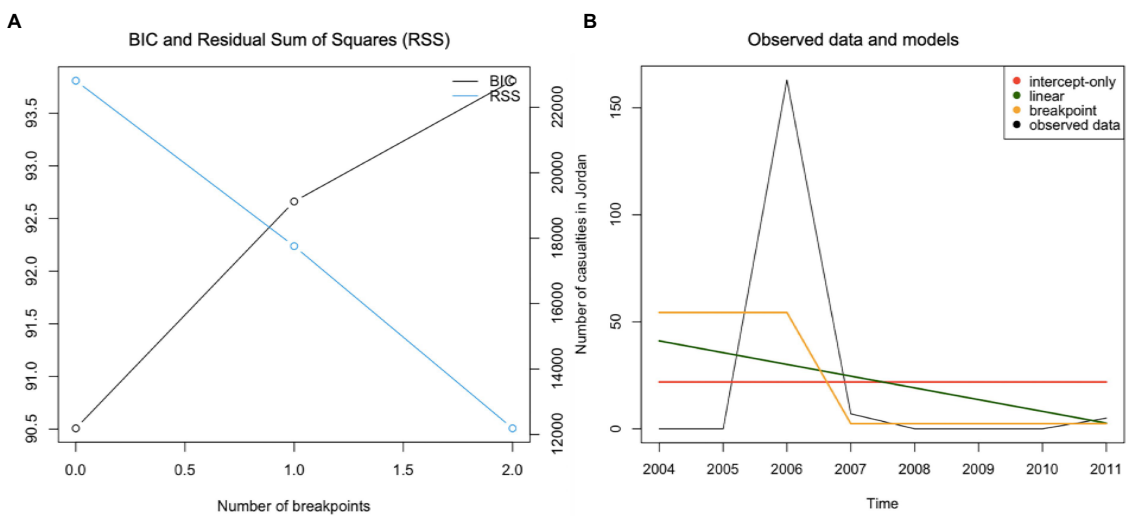

FIGURE 3
Panel **(A)** – BIC plot, Panel **(B)** - Plotting observed data and models for the time-series "Number of casualties in Jordan."

between 2008 and 2009. Assessing the *casualty rates in Israel*, a linear model with a negative slope described the observed data best (Figure 5).

Cross-correlations of time-series

The aforementioned analyses identified temporal variation in public support for terrorism in Jordan. In other words, it was justified to calculate cross-correlations to further explore predictors of the observed reduction in approval. The KPSS tests suggested that time-series were stationary (public opinion: KPSS level = 0.37, $p = 0.09$; number of attacks Jordan: KPSS level = 0.14, $p > 0.10$; fatalities and people injured Jordan: KPSS level = 0.19, $p > 0.10$; number of attacks Israel: KPSS level = 0.14, $p > 0.10$; and fatalities and people injured Israel: KPSS level = 0.41, $p = 0.07$). The time-series were therefore not differenced.

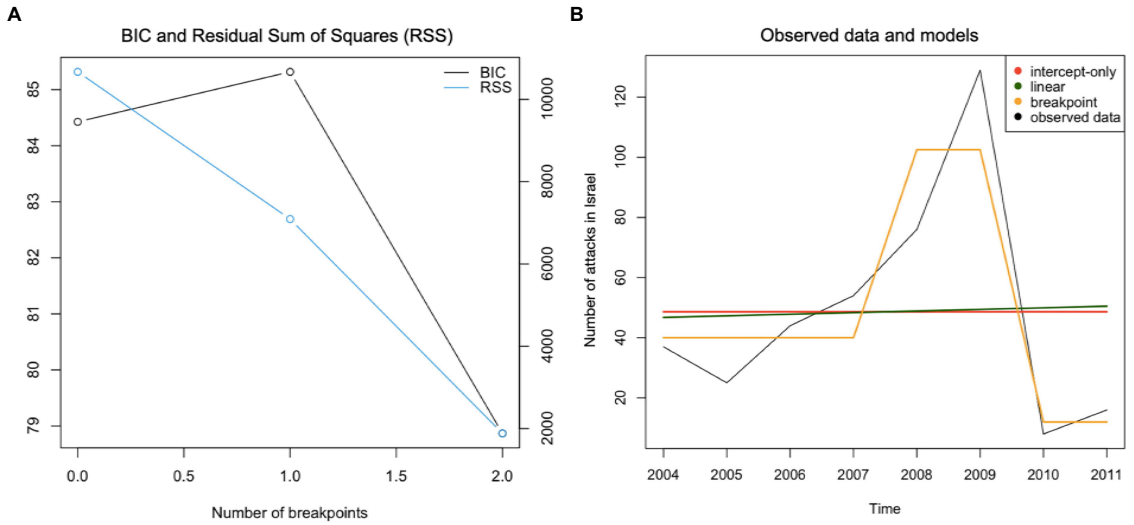

FIGURE 4
Panel **(A)** – BIC plot, Panel **(B)** - Plotting observed data and models for the time-series "Number of attacks in Israel."

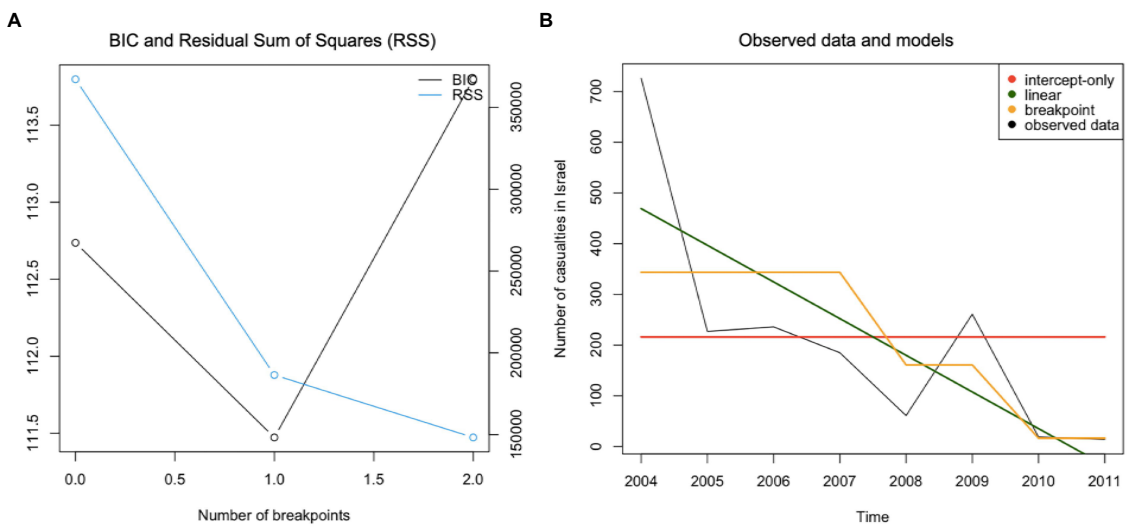

FIGURE 5
Panel **(A)** - BIC plot, Panel **(B)** - Plotting observed data and models for the time-series "Number of casualties in Israel."

Analysis of the cross-correlation functions (Figure 6) showed no significant relationship between public support for terrorism and the number of attacks and casualty rates in Jordan. This result is not surprising, given that no significant changes were observed in the two predictor time-series. Moreover, the number of attacks in Israel was not related with approval of terrorism (Figure 7A). However, public opinion and the number of fatalities/injuries in Israel was strongly positively correlated ($r = 0.72$; $R^2 = 0.52$ Figure 7B) at lag zero. Answering *Research Question* 1, the result pointed to a simultaneous association between approval of terrorism in Jordan and the number of casualties in terrorist attacks in Israel. It must be noted again that the attack data referred to a period spanning approximately 1 year before opinion data was collected; it does not represent attacks that occurred in the same year. The test for granger causality then indicated that a

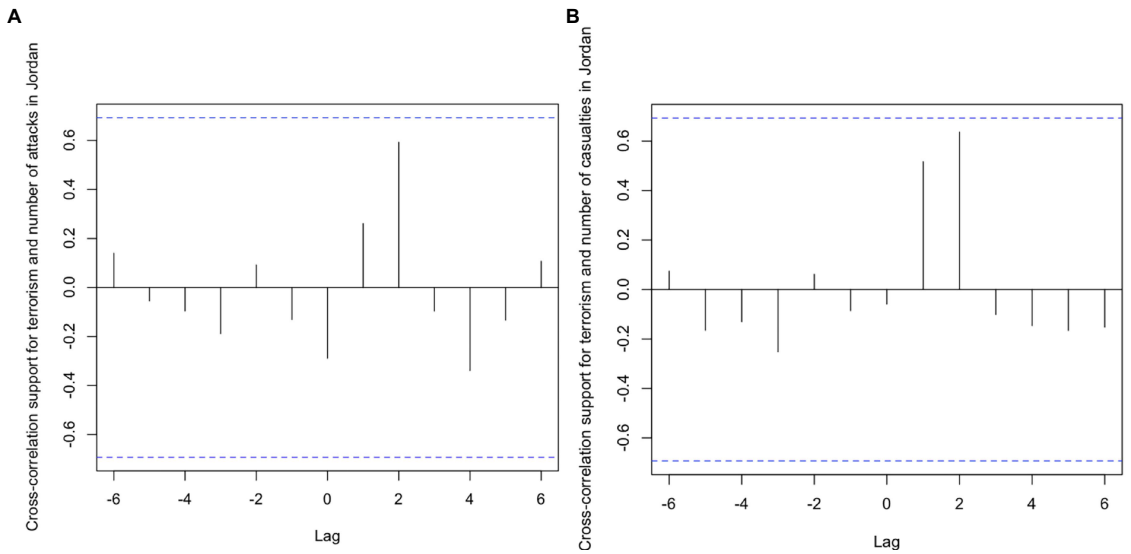
A
Cross-correlation support for terrorism and number of attacks in Jordan
-0.6 -0.4 -0.2 0.0 0.2 0.4 0.6
-6 -4 -2 0 2 4 6
Lag
B
Cross-correlation support for terrorism and number of casualties in Jordan
-0.6 -0.4 -0.2 0.0 0.2 0.4 0.6
-6 -4 -2 0 2 4 6
Lag

FIGURE 6
Cross-correlation function of time-series "Terrorism is ever justified" and "Number of attacks" Panel **(A)** as well as "Casualties in Jordan" Panel **(B)**.

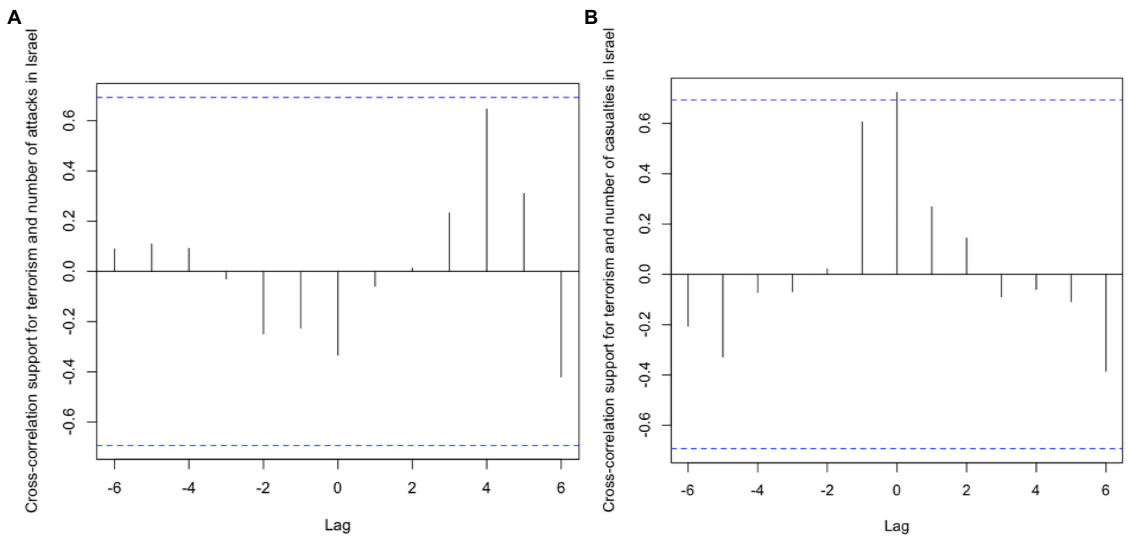
A
Cross-correlation support for terrorism and number of attacks in Israel
-0.6 -0.4 -0.2 0.0 0.2 0.4 0.6
-6 -4 -2 0 2 4 6
Lag
B
Cross-correlation support for terrorism and number of casualties in Israel
-0.6 -0.4 -0.2 0.0 0.2 0.4 0.6
-6 -4 -2 0 2 4 6
Lag

FIGURE 7
Cross-correlation function of time-series "Terrorism is ever justified" and "Number of attacks" Panel **(A)** as well as "Casualties in Israel" Panel **(B)**.

higher fatality/injury rate in Israel predicted stronger support for terrorism in Jordan ($F(-1) = 16.73$, $p = 0.015$). The reverse relationship—public opinion predicting fatality/injury rates in Israel—was not supported [$F(-1) = 4.41$, $p = 0.104$]. Hypotheses 2a and 2b were both rejected; Hypothesis 3 was not rejected.

Discussion

Taken together, we showed that public support for terrorism in Jordan decreased significantly over an 8-year period in the early 2000s. Applying time-series analyses, we confirmed previous descriptive results (Wilke and Samaranayake, 2006; Pew

Research Center, 2011; Lipka, 2017) to conclude that approval of terrorism is dynamic and subject to change over time. The fact that a breakpoint model best fitted the observed data provided initial evidence that unique critical events or accumulative trends affected the public's opinion.

Notably, conceptually replicating Jaeger et al. (2010) and Sharvit et al. (2015) results, we found a positive relationship between casualty rates of outgroup attacks and the justification of terrorism; outgroup attack frequency was not correlated with public opinion. The differential findings for the predictors 'outgroup attack frequency' and 'outgroup attack casualty rate' could suggest that the level of the endorsement of terrorism varies in response to the mere salience of outgroup violence, which is expected to be higher for more costly actions. The one-year lagged relationship between outgroup casualty rate and public opinion also indicates that only more recent—or, again, perhaps more salient—costly outgroup attacks predict approval of terrorism. More precisely, it seems conceivable that more costly outgroup attacks serve as a reminder of a conflict with a specific outgroup, or the outgroup itself, that elicits a short-lived sentiment that terrorism is an acceptable or necessary tactic (to address the salient intergroup conflict). Further research is needed to investigate the role of outgroup and conflict salience in more detail.

Analyses of Grangar causality did not confirm the reverse direction of the relationship between outgroup terror attacks and endorsement of terrorism. This result contests work that suggested that terrorist activity itself is impacted by public opinion. Sharvit et al. (2015), for example, showed that higher levels of approval of violence in Palestine predicted a larger number of future attacks on Israel. Bloom (2004) also recognized that in the period after November 2000, different actors used suicide attacks on Israeli targets to compete over Palestinians' support. One caveat of our study is that we did not extract whether the actors that committed attacks in Israel did indeed see the Jordanian public as a key stakeholder. We encourage further analyses of the respective attacks to conduct a more nuanced assessment.

Contrary to our hypothesis, we failed to identify a cross-correlation between the frequency of attacks and casualty rates in Jordan and levels of endorsement of terrorism. That is, although it has been noted that exposure to violence could evoke a need for retaliation or war weariness (Berrebi and Klor, 2006; Jaeger et al., 2012; Canetti et al., 2017; Brouard et al., 2018; Aytaç and Çarkoğlu, 2021; Kupatadze and Zeitzoff, 2021), which would suggest either a positive or negative association between domestic attacks and support for terrorism, we found no significant relationships. One way to interpret the finding is to consider the potential of cognitive and emotional desensitization. After being confronted with attacks over a longer period individuals may come to believe that terrorism is normal (i.e., cognitive desensitization). Attacks then do not elicit an emotional response such as fear or anger (i.e., emotional desensitization), and public opinion on terrorism may not fluctuate (Funk et al., 2004; see Castanho, 2018; Nussio, 2020). While appealing, this rationale does not appear suitable for the present context. Jordan has experienced overall low levels of domestic terrorism in the study period. Failure to detect a significant cross-correlation with this predictor is, therefore, likely due to the low level of variation of the time-series. Moreover, when examining the targets of attacks in Jordan, it is evident that three of seven known targets include foreign military and diplomatic staff; those attacks might, in fact, not have been viewed as ingroup attacks (Supplementary Material S5). In contrast, the large majority of attacks in Israel targeted Israeli citizens, military, infrastructure etc. (Supplementary Material S7), thus, are clearly categorized as outgroup attacks. We recommend that future research replicates our analysis in a context with a higher variability of domestic terrorist events and a higher percentage of ingroup attacks.

Limitations

The aforementioned conclusions must be considered in light of the following limitations. First, due to not weighing the raw PGAS data to adjust for the probability of being included in the study or the sample design, we must acknowledge that the samples do not fully represent the population from which they were drawn. Specifically, respondents who describe their national group as Palestinian were oversampled in the PGAS, and it could be speculated that the trends in public opinion in our sample are more strongly influenced by this group than is evident in the Jordanian population as a whole. However, analyses presented in the Supplementary Material S4 show no systematic differences in support for terrorism between Palestinian and Jordanian respondents. Moreover, the measure examining public support for terrorism does not refer to active support provided to terrorist actors. As such, one should not draw conclusions about the degree of radicalization. To approximate the latter, dedicated questions regarding respondents' own willingness to use violence to attain political, religious, or social justice goals must be included in public opinion polls. For ethical and legal reasons this is, understandably, not always feasible. Relatedly, the PGAS data were collected through interviews. As can be seen in the raw data (Supplementary Material S1), very few people refused to answer the question. However, it could be expected that concerns of social desirability affected the answers that were given, such that overall levels of approval of terrorism might be underestimated.

Additionally, it is worthwhile to reflect on the validity of the measure of public support for terrorism. The question that was used to examine public opinion did not make explicit reference to ingroup or outgroup members as victims. We only

included respondents who described their religion as Muslim. As the question noted the need to use violence to defend Islam, respondents might have considered it to mean violence toward those who are not Muslim rather than the justification of terrorist tactics. Unfortunately, the present research does not allow us to clarify this matter further. Subsequent studies could, however, address this gap in the literature by including measures on ingroup, outgroup, and perpetrator perceptions as well as support for terrorism and investigate their discriminant validity.

Alternative, or complementary predictors of public support for terrorism at the individual, meso or macro level were not considered in our analysis. For example, the costs of attacks were only conceptualized as casualty rates. Economic costs, which may outweigh non-economic costs, were not introduced (Grossman et al., 2018; Manekin et al., 2019). Changes in attack tactics are a further potential confounding variable. That is, certain weapons or attack methods against outgroups may be justified less strongly. However, as shown in the Supplementary Material S8, no systematic variation in weapon type was identified for attacks in Israel during the study period. Time-invariant factors of the attacks were also not held constant, such as the group who committed the attacks, or broader social and political trends, namely, recessionary economic trends that have found to predict support for terrorism (Bueno de Mesquita, 2005; Bueno de Mesquita and Dickson, 2007).

Moreover, manifestation of other forms of violence, including violence from state actors or organized crime groups, in Jordan were not assessed; neither did we examine the impact of terrorist attacks against other outgroups and countries. These experiences could have also elicited a sentiment of war weariness that might be generalized to predict (better than terrorist attacks) the reduction of public support for terrorism. In light of the reduced complexity of our models, the presented associations therefore may be overestimated. The latter might also be the case because we chose one specific outgroup whose relationship with Jordan has been defined by a long-standing conflict. It is possible that when examining attacks on other outgroups, for example, non-Muslim majority countries with whom no direct conflict has been experienced, the strength of the association with public opinion could be weaker. Finally, as we identified discrepancies in the number of reported terrorist attacks in Israel between two datasets, we must acknowledge that this data could differ from the attacks that occurred and, further, from attacks that were recognized by the public in Jordan. Survey studies that examine what attacks people recalled could be a tool to overcome this concern.

Despite these limitations, we believe that the study makes relevant contributions to the literature. We highlighted the importance of assessing public approval of terrorism as a dynamic concept that changes over time. In addition, we showed that more costly terrorist attacks that target an outgroup can affect, fairly quickly, how strongly terrorist tactics are endorsed. Both terrorist and state actors are keen to direct public opinion in their favor (Schuurman, 2013). In light of our results, strategies that influence the public need to consider not only domestic events but, especially, activities that target outgroups.

Data availability statement

The raw data supporting the conclusions of this article are available in the Supplementary material.

Author contributions

SS conceptualized the study, conducted the literature review and analyses, and prepared a first draft of the article. BR extracted the data and cleaned datasets as well as revised the manuscript. PG revised the manuscript. Funding for the study was awarded to PG. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.778714/full#supplementary-material

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